ENGINEERING NEWS-RECORD

NOV. 27, 1958

- Building economy into a quality dormitory p.42
- Chicago tries burning undried sludge p.44

Big new freeway: Los Angeles to San Diego to Mexico p.30

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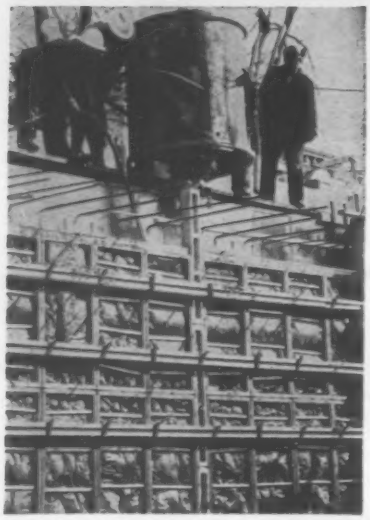

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Save 50% on Cost of Heating & Curing Concrete

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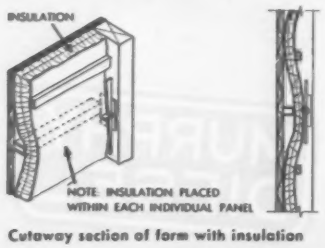

Cutaway section of form with insulation

tube was cast in the wall four feet from the top with a thermometer suspended in the bottom. After 24 hours, temperature at center of concrete rose to 105 degrees and after five days the concrete went back to 70.

Symons forms, shores and column clamps may be rented with purchase option. FREE literature on Symons' products is available upon request.

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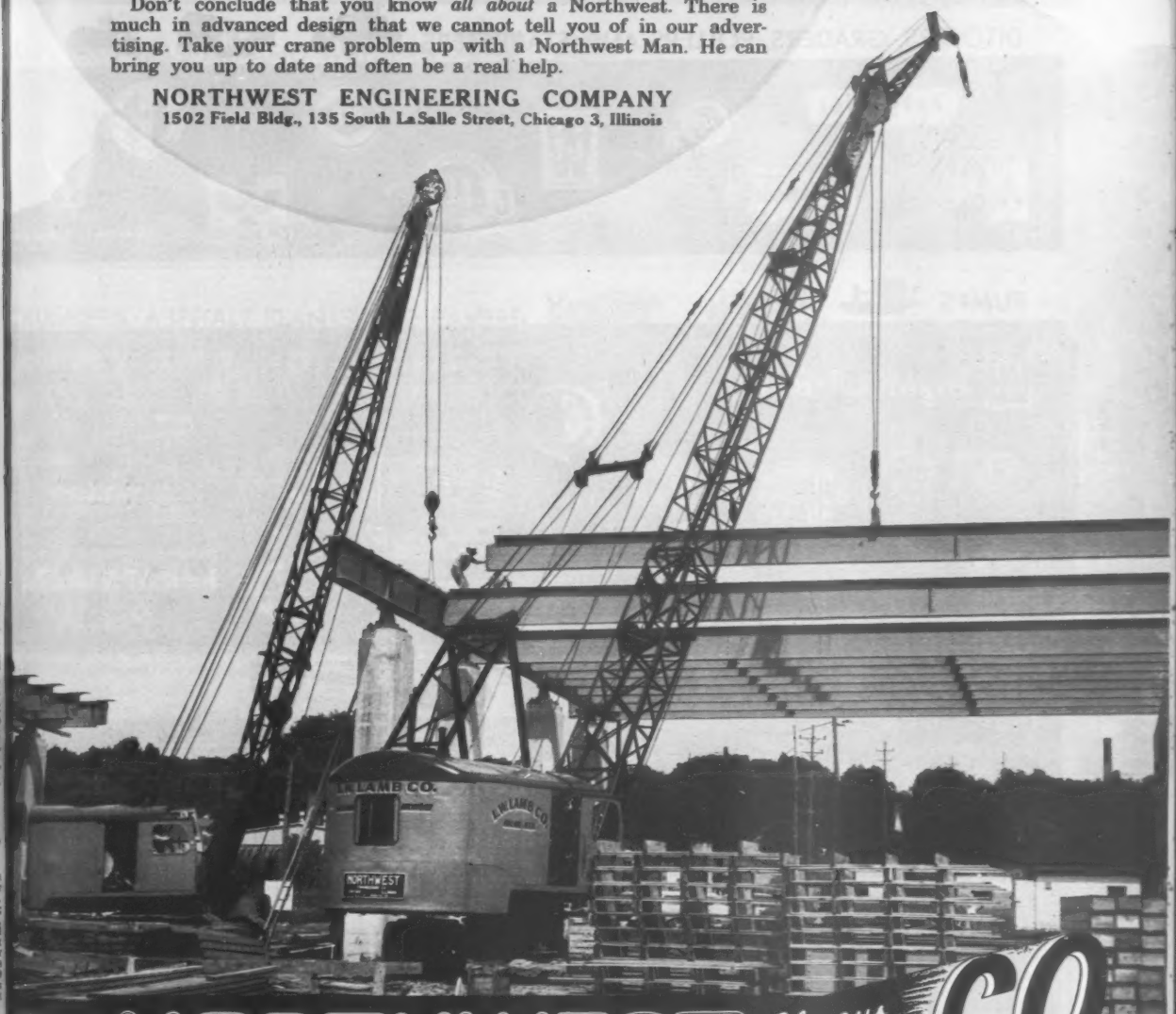

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Clinchfield Coal Company's Moss No. 3 coal preparation plant, at Clinchfield, Virginia. Design and construction by Link-Belt Company—3000 tons of structural steel fabricated by Bristol Steel.

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THE three major projects pictured on this page, all interrelated and dovetailed into $100 million of construction, *will start operation this year on schedule!* Bristol Steel fabricated all of the more than 12,300 tons, erected over 9,300 tons and designed some 1,800 tons of the structural steel for these projects. *When schedules are tight, you can count on Bristol Steel* . . . Won't you let us work with you on your next requirement for structural steel?

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Nothing to Hide on TVA's Wilson Lock

SIR—The letter entitled, "Hidden Economics," (ENR Oct. 23, p. 12) questioned the economic justification of the new lock in TVA's Wilson Dam.

The economics of the new lock was the subject of thorough investigation, the results of which were published by TVA and submitted to the Congress prior to authorization and construction. TVA will provide the details of the study on request.

In summary, they showed that the present facilities are no longer adequate for handling the traffic of the waterway. As a result of traffic jams and lock outages at Wilson, many tows are delayed for long periods of time.

Contrary to Mr. Wadleigh's assumption, the daily operating costs of the towboats, crews, and barges average approximately $1,500. And directly affect the cost of barge operation.

Estimated annual benefits from the new lock are as follows:

Savings to shippers resulting from increased traffic capacity	$2,700,000
Increased dependability and efficiency of operation	618,000
Decreased operation and maintenance costs	182,000
Total estimated annual benefits	$3,500,000

TVA does follow up on the economic performance of its projects. A detailed study of potential traffic made by TVA in 1940 indicated that about 7 million tons of traffic would be moving annually on the Tennessee River by the end of the 15-year developmental period immediately following completion of the channel to Knoxville, with a resultant annual saving of $9 million. The channel was essentially completed in 1945.

In 1957, three years before the end of the developmental period, about 12.7 million tons moved on the river at a transportation saving of $21.5 million. The annual cost of owning and operating the TVA navigation system is about $3.8 million. Net transportation savings represent a 13% return on the net navigation investment.

GEO. K. LEONARD
Chief Engineer
Tennessee Valley Authority
Knoxville, Tenn.

Aluminum Bridges: Supplying Answers

SIR—Your editorial, "Goal: Sheet-Metal Framing" (ENR Sept. 4, p. 132) indicated there are some questions that current tests of the Fairchild Aluminum Bridge at Lehigh University "leave unanswered." In behalf of the Joint Committee for the Development of the Fairchild Aluminum Bridge, which consists in part of the representatives of four aluminum producers, I would like to present our reply to the questions you have raised.

• There is no danger of brittle failure at low temperatures.

Extensive tests have shown that the values of tensile and yield strengths, and the elongation of 6061-T6 alloy, become higher at lower temperatures. These tests have included temperatures as low as −300F.

• Twenty-five years of corrosion testing under varying environmental conditions have established the compatibility of aluminum alloys and concrete.

During the pouring and setting period of concrete, only superficial etching of the aluminum takes place; thereafter, no corrosion occurs. Detailed information on this subject is available in a paper, "Compatibility of Aluminum with Alkaline Building Products," published in the December, 1957, issue of Corrosion.

• There are no specifications or requirements for the performance of bridges under the influence of a small, hot fire.

This problem presented itself a couple of years ago during the design of an aluminum ceiling liner for the Hampton Roads Tunnel. Fire tests simulating actual fire hazards were conducted to demonstrate the practicability of aluminum in this type of application. The results of these fire tests were published in the June, 1957, issue of Ceramic Industry under the title, "Aluminum Panels Pass Fire Tests." A review of the effects of small, hot fires on aluminum and other conventional materials indicates that the high thermal conductivity of aluminum is an important factor in its behavior when exposed to the effects of localized high temperatures.

R. HB. DAVIS
Chairman, Joint Conference for the Development of the Fairchild Aluminum Bridge
Hagerstown, Md.

A 'No Confidence' Vote Is Cast

Sir—The article on probabilities (ENR Aug. 28, p. 25) is instructive because statistical analysis has almost become an official religion over a wide field of engineering analysis. However, I feel stimulated to express the nonconformist viewpoint which still exists.

First, the statistical appreciation of a small sample of data of natural phenomena must necessarily presume that the sample belongs to a family of known distribution about some mean. This is certainly not the case with a significant number of rivers which exhibit some cyclic and determinate factors in their behavior. It seems unwise to compile the data into one amorphous mass without reference to sequence.

Secondly, the statistician assumes that there is in fact a constant mean or average value about which all his data will arrange themselves. This convention is inadequate, at least in the tropics, where some major rivers have shown great changes in the value of mean flow in the many decades of records available. One of these is the Nile. And although engineers, like the Israelites, are often required to make bricks (Reader Comment continued page 11)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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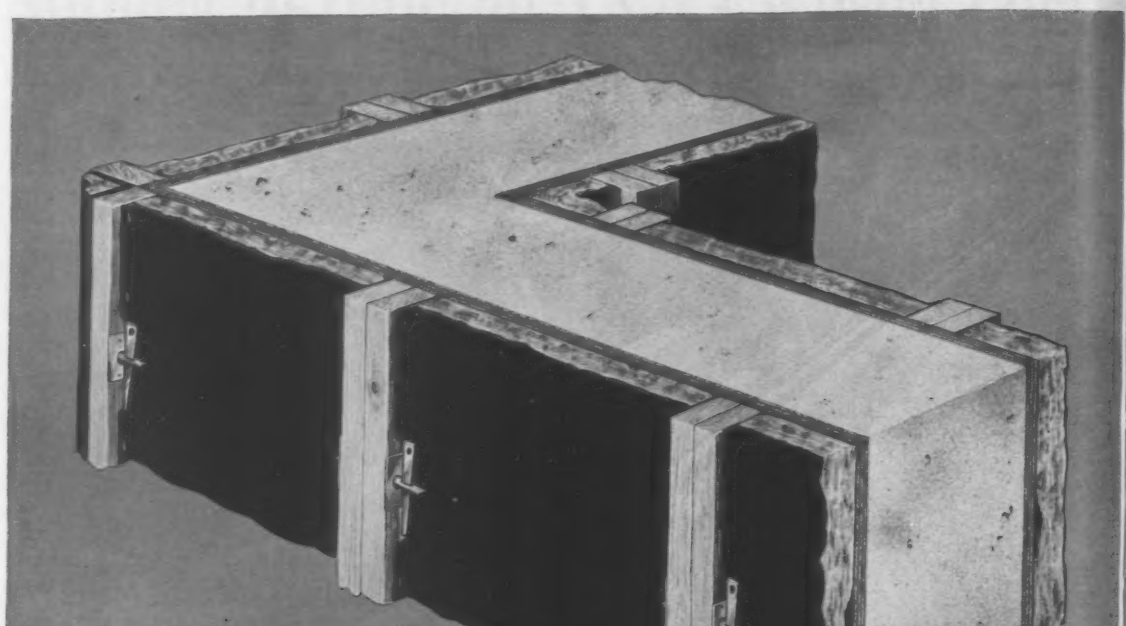

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without straw, it is well if they keep in mind that they are doing no more than that. I suggest it is sometimes hazardous when dealing with natural phenomena to interpret the word "confidence" in the same way as the statisticians and that some additional scale of values should be used.

N. J. COCHRANE
Senior Engineer
Sir William Halcrow & Partners
Consulting Engineers
London, England

Let Ivan Do Aswan

Sir—This writer heartily agrees with Mr. Dulles' refusal to spend American money on the Aswan Dam. Let the Russians do it; the job will never be finished.

Here is an example of how Russian aid gets things done: Work started in Rumania in 1951 on a canal from the Danube to the Black Sea (ENR Oct. 4, 1951, p. 48) and newspapers of satellite and neutral countries were full of Communist propaganda on the canal for two years: Rumania, with the help of the "big brother," Soviet Russia, was now to execute this large project that had been too big for capitalist governments for 100 years.

After all the propaganda advantages had been harvested, the project was quietly abandoned. It is still unfinished —a memento of broken "big brother" promises.

Will you bet that the Aswan Dam's destiny is to be the same?

EUGENE POPESCU
Bronx, N. Y.

A "Tadpole" Objects

Sir—I am a very small "tadpole" in this great "swamp" known as the United States. However, even we smallest of "tadpoles" do have opinions and thoughts of our own, and, I believe, a constitutional right to express them.

Your article "Danger Ahead in Right-to-Work" (ENR Oct. 16, p. 21) moved me to write. This piece is as is usual with Engineering News-Record, heavily loaded in favor of unions. Why is it that the "Record" is always pro-unions, pro-public power plants, pro-glorified ditches like the St. Lawrence Seaway, pro-everything that had its origins in days of the New-Fair Deals (Raw Deals I would call them)?

My opinion is that the "closed shop" is unconstitutional, if anything ever was. I believe the Declaration of Independence has something about the right of all to the pursuit of life, liberty and happiness. Certainly a "closed shop" gives the right to nothing other

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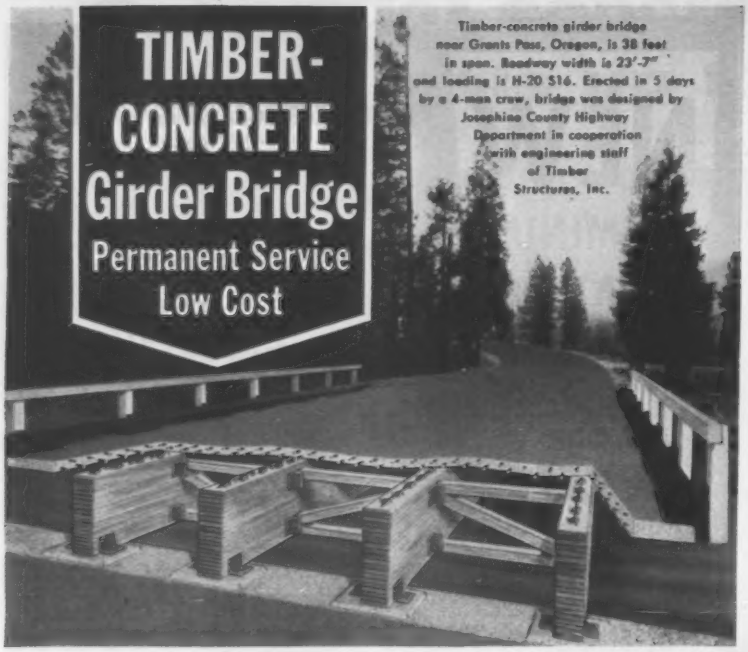
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Timber-concrete girder bridge near Grants Pass, Oregon, is 38 feet in span. Roadway width is 23'-7". and loading is H-20 S16. Erected in 5 days by a 4-man crew, bridge was designed by Josephine County Highway Department in cooperation with engineering staff of Timber Structures, Inc.

Permanent in service, economical of material and labor in construction, and flexible in design and application, the timber-concrete girder bridge by Timber Structures, Inc. gives the taxpayer a genuine bargain.

Heavy glulam girders made with waterproof glue and preservatively treated for permanent service are joined with specially engineered shear developers and tension ties to deck of reinforced concrete. Girders take the tension in the composite beam action of the bridge, and the concrete deck is the compression member. The bridge is permanently rigid, requiring no maintenance other than painting hand rails for appearance.

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than what is dictated by the "goons" who head the unions.

I was employed by a railroad, retired as of August 19th, 1950, but called back on a temporary basis as of May 1952. Thank God I was retired again as of October 25th, 1952. Had I remained in the employ of the railroad I would, as of January 1st, 1953, have had to join the union if I cared to continue the pursuit of life, liberty, and happiness.

I have railroad retirement and, being over 72 years of age, I have "Social Security"—my wife also has her two pensions. In addition I have a moderately good position in the gymnasium of a great university. However, were I younger—I am in my 74th year—I would expect to see the time when promoters of life, liberty and happiness would compel Congress to pass laws forbidding pensions to any except union members.

HERBERT S. NELSON
West Haven, Conn.

Consultants, or No?

SIR—Your resume of the report of the Automotive Safety Foundation on how to run a highway department for the State of Pennsylvania is interesting (ENR Sept. 4, p. 27).

It is significant to note that their recommendations for planning are directly opposite to the findings of the Hoover Committee and the Fund for the Republic, which found it more practical and economical to have government planning done by private consultants.

HARRY R. POWELL
Harry R. Powell and Associates
Seattle, Wash.

CALENDAR

The American Society of Mechanical Engineers, 78th annual meeting, New York Coliseum, New York City, December 1-5.

American Association of State Highway Officials, annual meeting, Sheraton-Palace Hotel, San Francisco, Dec. 1-5.

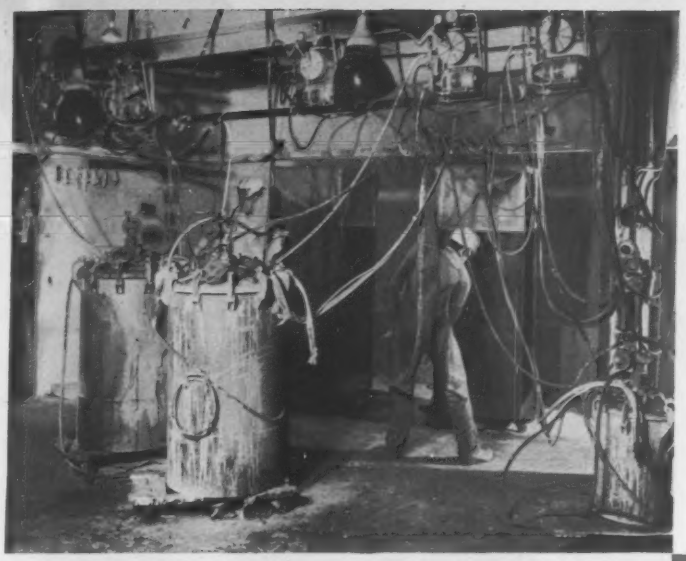
Building Research Institute, conference on "Field Applied Paints and Protective Coatings," Shoreham Hotel, Washington, D. C., Dec. 3-4.

Fourth National Construction Industry Conference, "Creative Trends in Urban Building," Hotel Sherman, Chicago, Ill., Dec. 10-11.

National Concrete Masonry Association, 1959 convention and biennial Concrete Industries, Exposition, Public Auditorium, Cleveland, Ohio, Jan. 12-15.

Building Research Institute, "Noise Control in Buildings," New Yorker Hotel, New York City, Jan. 14-15.

Society of Plastics Engineers, 15th annual technical conference, Hotel Commodore, New York City, Jan. 27-29.



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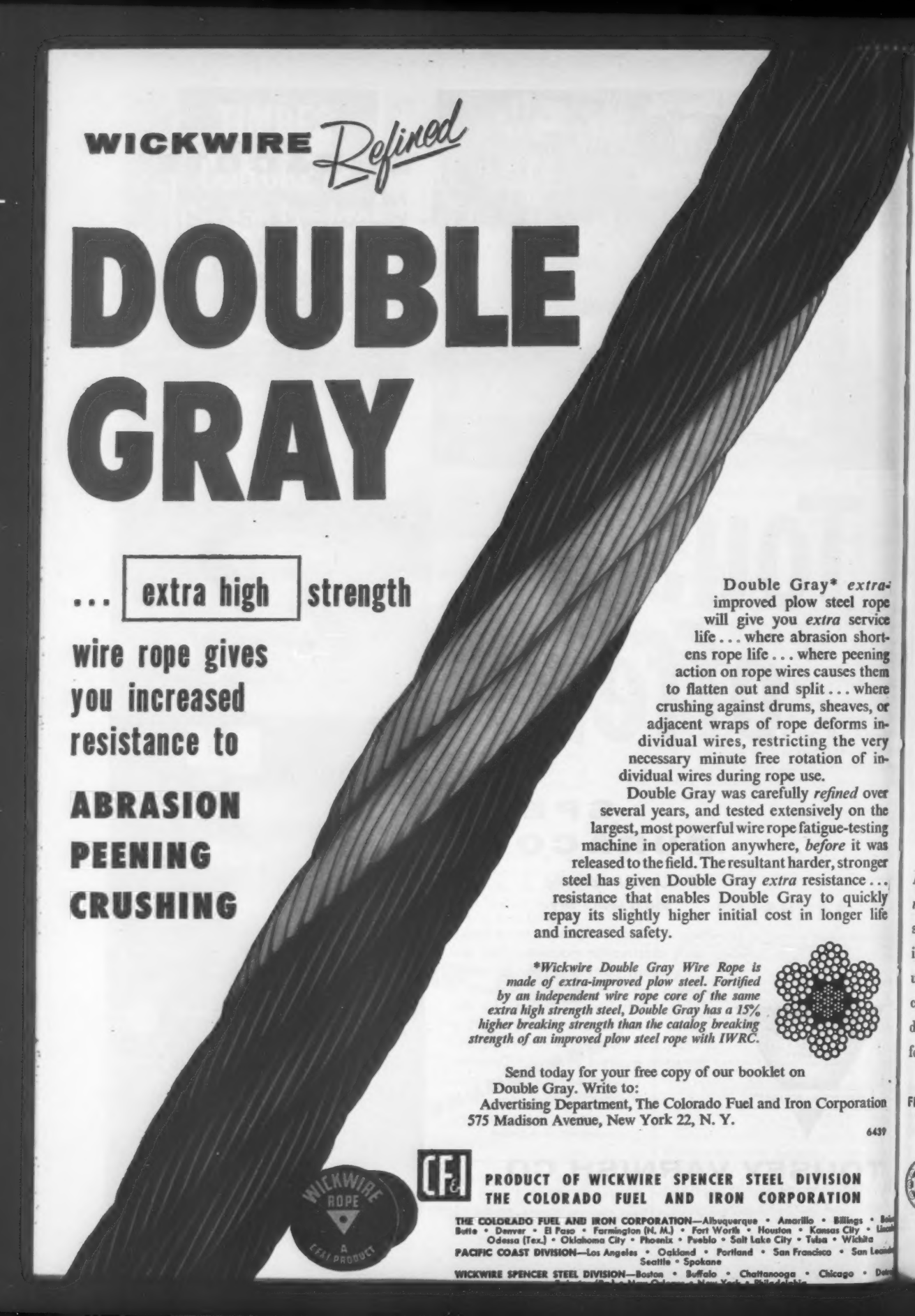

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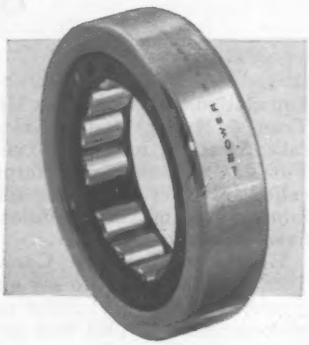

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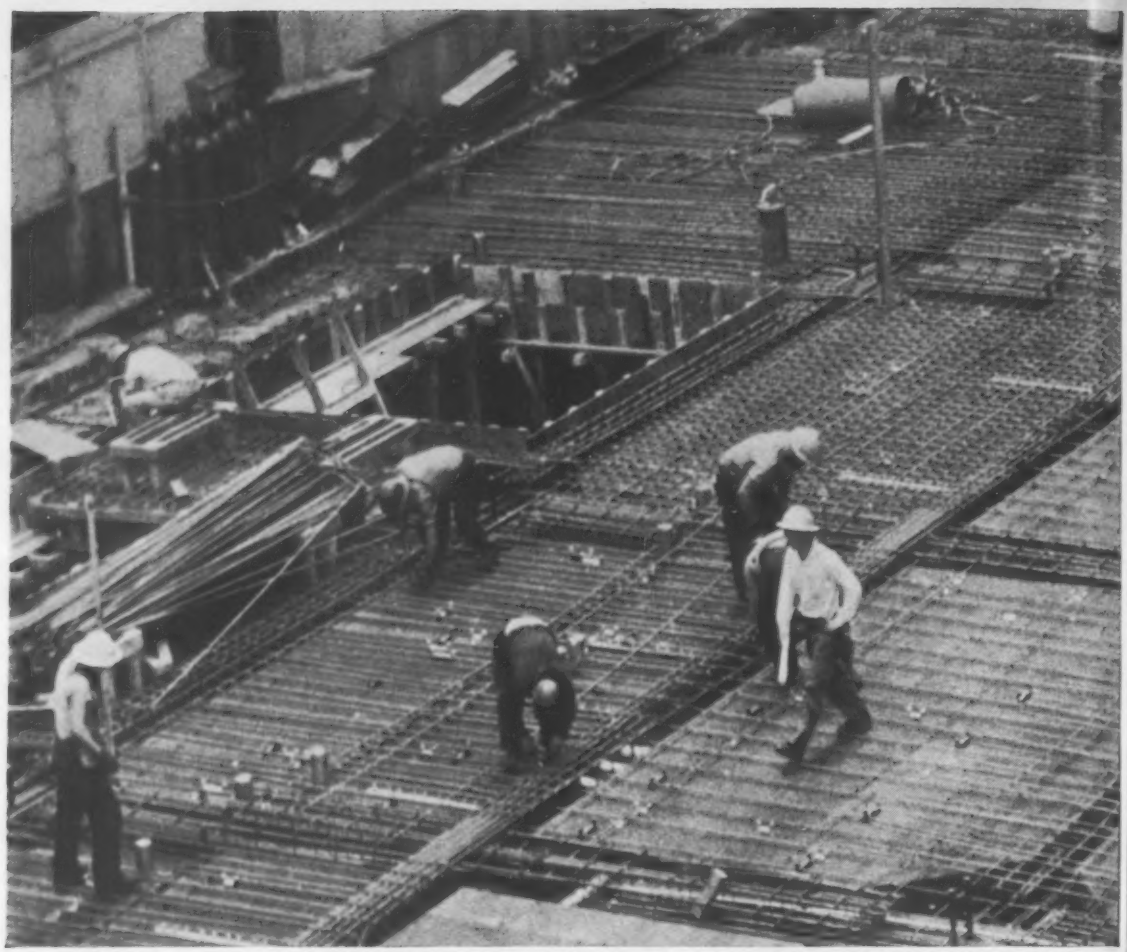

View of foundation work on new 23-story Harris Trust & Savings Bank building, Chicago. Architects: Skidmore, Owings & Merrill. General contractor: Turner Construction Company. Re-bars from Ryerson.

"An exceptionally fine performance on an extremely tight schedule"

says Turner Construction Co. engineer

Foundation work for the new Harris Trust & Savings Bank, Chicago, called for a tight three-shift schedule. Turner Construction Company called on Ryerson for detailing, fabricating and on-schedule delivery of reinforcing steel.

Here's what H. D. Conant, Turner engineer, had to say about Ryerson's service: ". . . your spirit of cooperation coupled with an exceptionally fine performance deserves special mention. We sincerely appreciate the fine efforts made by all concerned in your organization."

Many leading contractors, like Turner Construction Company, rely on Ryerson for a complete reinforcing steel service. The reasons: Ryerson has unequaled stocks and fabricating capacity to keep pace with any job's progress . . . delivers steel exactly when needed—accurately cut, bent and tagged for quick placement.

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

CEMENT PRICE OUTLOOK—Portland cement prices will go up 15 cents a barrel in the Northeast January 1. But they will not go up again in 1959. That's the word from Lehigh Portland Cement, American Cement and Alpha Portland Cement. The hikes do not yet apply at all plants of these companies. But the action contrasts with those of Marquette Cement, Medusa Portland Cement and Universal-Atlas. Their mid-Western prices will hold all next year (ENR Nov. 13, p. 17).

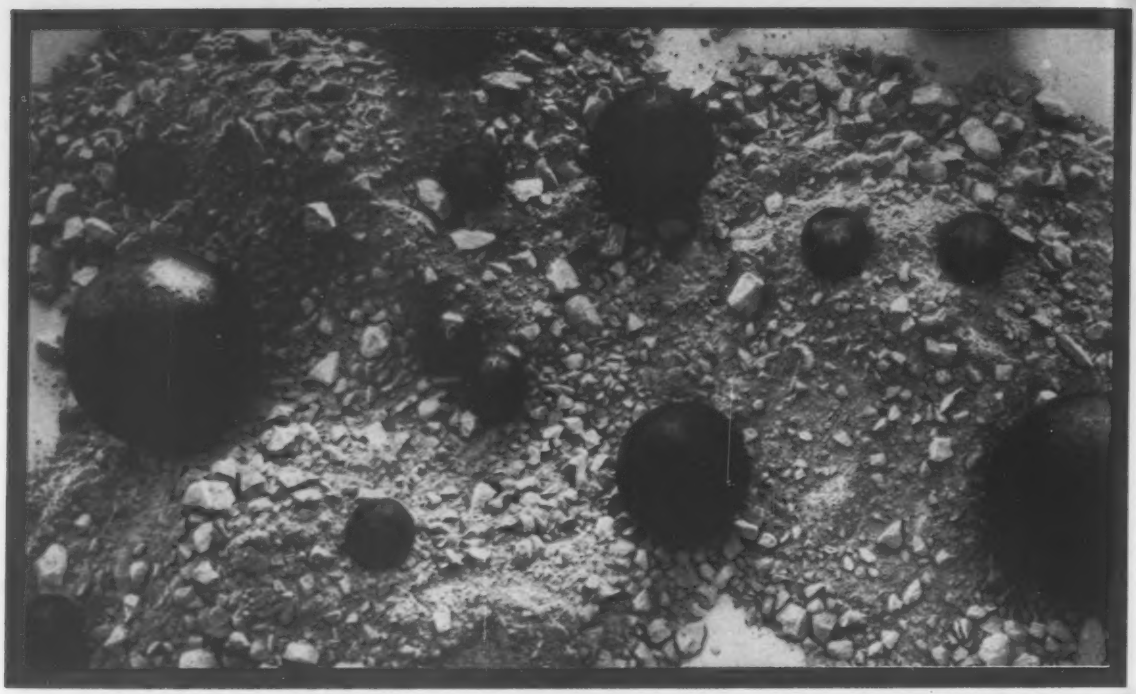
WHO'S TO BLAME FOR BOYCOTTS?—A legal theory with far-reaching implications was suggested by a National Labor Relations Board trial examiner last week. He said a clause in a union constitution requiring members to handle only union-made products is enough to pin responsibility for a secondary boycott on an international union. The statement came in a decision on a San Francisco carpenters' dispute over installation of nonunion doors.

NEW HOUSING CODE? NOT YET—A single national housing code for one- and two-family houses is still a long way off. The American Standards Association has voted down a proposal for such a code. Leading code-writing organizations and many building materials groups were among those voting "no." Opponents urged adoption of one of the existing model codes.

A-POWER PROGRESS—A group of 40 private utilities has offered to build a $24.5 million nuclear power plant near Philadelphia. The bid came just at the end of a 60-day deadline set by Congress for submission of industry bids for development of gas-cooled power reactors.

ANOTHER RECORD FOR RUSSIA—The world's largest cement plant will be built on a site somewhere in central Siberia. Its capacity of 34,500 bbl per day will be turned out by only two kilns. These kilns, 20 ft in diameter and 574 ft long, have been ordered from a French firm. They'll be part of a 14,000-ton shipment of cement plant equipment to be sent to Russia. (For more Soviet plans, see p. 23.)

WHAT PRICE UNITY?—Engineers Joint Council's board has balked at passage of a 1959 budget that would up expenditures some 40%—to over $73,000. Biggest boost in spending would be for more staff. One item that helped stymie the increase was more funds for public relations, including institutional advertising. Some board members said they would be hard put to sell an increased EJC assessment to their societies. Engineering society income is down in some cases because of a drop in society journal advertising.



How Penn-Dixie Converts the Raw Materials into a Smooth Liquid Form

Shown above is the blended mixture of limestone, shale, iron ore, sand and samples of steel grinding balls. The blended mixture, with water added, is fed into huge revolving cylinders containing thousands of these tumbling steel balls. These balls, ranging in size from three and a half inches to one inch, crush and grind the material into a smooth, fine-grained consistency. This process is called "pulverization".

This smooth, creamy mixture called "slurry" is then pumped to storage tanks where it is carefully mixed and blended. From there it is pumped into kiln feed basins where constant agitation keeps the materials in suspension awaiting the next step—the burning process.

Penn-Dixie's lab is always on the job making detailed analyses of each batch of slurry to insure that exact specifications have been met all along the line. This round-the-clock testing is your guarantee of Penn-Dixie quality.

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WASHINGTON OBSERVER

- **Supreme Court next for steel merger?**
- **Alaska wants to join reclamation system**
- **States need highway money too**
- **Commerce wins battle over statistics**

- **Building materials producers see the turndown of the Bethlehem-Youngstown steel merger as a landmark that will bear on the future growth of their industries.** The steel companies argued the merger would stimulate competition. Bethlehem wants to spend a total of $358 million on new plant.

  Specifically, Bethlehem said it would expand Youngstown's Chicago capacity to produce structural shapes and heavy plates by 1,176,000 tons. Bethlehem argues the lack of such capacity forces high costs on steel purchasers who must pay heavy freight charges to bring structurals in from distant plants.

  But any benefits that might stem from the merger, the court ruled, are beside the point. The law states that a merger is illegal if it may substantially lessen competition "in any line of commerce in any section of the country."

  An appeal to the Supreme Court might produce a decision in six months or a year. The Supreme Court could refuse an appeal, leaving the present ruling as final.

- **Alaska will seek to become the 18th reclamation state.** The Bureau of Reclamation has projects in the area—one being the Eklutna hydro-power project, recently put in operation.

  Now Congress will be asked to legislate the new state into the basic reclamation system. This would make the state eligible for surveys, investigation, authorization and construction of water resources projects for agriculture and industrial development.

- **Several states as well as the federal government need more money to finance the highway program.** The Treasury Department, Bureau of Public Roads and the Congressional tax-writing committees are already talking of a tax increase to replenish the highway trust fund.

  Now reports are coming in that about a dozen states whose legislatures meet in January will consider legislation to raise matching funds for the interstate and ABC systems. **Most states plan to increase levies on gasoline, registrations and licenses.**

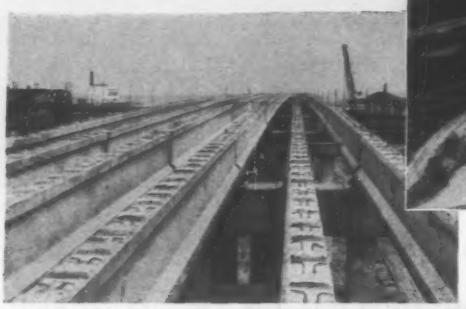
- **The construction industry won a long, drawn-out battle this week. The Commerce Department was granted sole government responsibility for collecting and reporting construction statistics.**

  The job now is divided between the Commerce Department and the Bureau of Labor Statistics. This division has acted as a bar to strengthening and improving government statistics on construction. Industry officials have been urging the change.

  Commerce will take over the job beginning July 1, 1959. In exchange, BLS will assume sole responsibility for issuing the employment-unemployment reports each month, instead of sharing this function with Commerce.

Causeway to the Future

Galveston's New Pelican Island Causeway Features 3600 Feet of Prestressed Concrete Construction



PRESTRESSED CONCRETE VIADUCT, foreground above, leads over railroad switching yards to bridge and trestle on Galveston Ship Channel. (Left) Girder alignment on viaduct before concrete slab was cast in place.

● Back in 1867, most of the area now called Pelican Island, directly north of the City of Galveston, lay in one to five feet of water—according to charts prepared by the U. S. Coast and Geodetic Survey.

Today, shifting sands and dredged fill have made Pelican Island a valuable 4,000-acre site for industrial development. And years of civic planning and effort have created the magnificent new Pelican Island Causeway, linking this important property to the city.

The Causeway is approached from midtown Galveston over a 1522-ft. prestressed concrete viaduct, which crosses 17 railroad tracks in 50 to 100-ft. spans, providing direct vehicular access.

At the Galveston Ship Channel, a 2100-ft. prestressed concrete trestle connects with hydraulic fill embankments extending from both shores. In mid-channel, a 160-ft. rolling lift bascule span provides adequate clearance for all types of shipping.

This complete structure—requiring 50,000 barrels of Lone Star Cement—well illustrates the ever-growing use of prestressed concrete for bridges that are efficient and economical, both in initial cost and in ultimate cost over many generations of service.

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As bid openings still pack them in, contractors are finding . . .

Longer Odds for Smaller Stakes

In the legalized gambling game called contracting, the gamblers must now place more bets for a chance at reduced winnings. And plenty of them are going broke.

In the last three weeks alone, Dun & Bradstreet reports, 145 contractors went bankrupt.

In nonbuilding work, which is booming, 101 failed in the first 10 months of this year. That's a postwar high.

In building work, the 10-month total hit 827 failures. That's 26% more than last year and also a new postwar high.

The complaint of profitless prosperity has been prevalent in the industry for months (ENR Oct. 2, p. 21). And a check on contractors this week turned up few signs of improvement.

There's more construction—but also more contractors. So competition is up, bid prices are down. And with contractors' costs still rising, the squeeze on profit is painful.

Contractors who used to get one job out of 10 bid are now getting one in 20. A fellow who could count on only one in 20, now figures one in 40.

One contractor told ENR he has bid three to four jobs each week since last May. These jobs ranged from $500,000 to $6 million, with a few of them up to $12 million. He hasn't gotten a single one.

• **How to beat the odds**—Some ideas on how to play today's long odds came from leading construction companies across the country:

• Be more selective in choosing jobs to bid. Stay clear of the job you expect to be bid too low.

• Go after the bigger job on the theory that its size will keep the number of bidders down—but don't be too sure.

• Don't be tempted by the many available small jobs if you're a big fellow; the overhead on them will kill you.

• Stay in your own class. You'll improve your odds by competing only with the contractors who share your financial problems.

• Shun open competition for public works and seek out negotiated contracts on private work.

• Just bid more jobs and be satisfied with lower profit margins.

These were the comments of contractors who almost unanimously admit they are bidding more jobs in the attempt to keep up their volumes; and most admit their profit margins are down.

• **The stakes stay low**—There are a number of indicators pointing to the lower prices contractors are bidding.

• Highway bid prices are currently below their 1957 highs in nearly all states where highway departments compute indexes regularly. The U.S. Bureau of Public Roads Composite Mile Price Index for federal-aid highways confirms the evidence reported by the states to ENR (see next page).

• Heavy construction prices bid by contractors in 17 western states and Alaska are 3% under the record high set late in '57 (and held until early this year). In fact the price index of the U.S. Bureau of Reclamation dropped in July to 5% under the previous high. A slight rise from July to October recouped only part of this drop. USBR's indexes for two major types of work are down much more than its composite index: Earth dam costs in October were 10% less than a year ago; canal costs were down 6.6%.

• Bid prices on heavy construction dropped, according to still another index, during the first half of '58. They tumbled 8.7% under the second half of '57, to the lowest point since '56, according to the contract price index for projects in the western states computed by the San Francisco District, Corps of Engineers (ENR Sept. 18, p. 63).

• **But players keep coming**—Despite failures dropping the losers out of the

Here Are the Latest Highway Bidding Trends

Bid Prices Are . . .	Index, 1949 = 100 3rd Qtr '58	Change from 2nd Qtr '58 %	Change from 3rd Qtr '57 %
. . . Down Here			
US Composite Mile—BPR	113.6	— 1.7	— 2.5
California	119.8	— 1.1	— 3.8
Colorado	99.9	— 2.5	— 0.1
Michigan	115.9	— 1.3*	— 0.9**
New York	127.4	— 3.5	— 0.3
South Dakota	81.1	—17.6	—12.0
. . . Up Here			
Idaho	97.0	+ 5.3	—32.4
Nevada	124.2	+15.0	— 3.5
Oregon	100.0	+ 0.6	— 3.7
Washington	98.4	+ 0.4	— 6.3
Texas	134.5	+ 2.1	+ 9.7

Number of Bidders Is . . .	Aver. Number of Bids Per Job 3rd Qtr '58	2nd Qtr '58	1st Qtr '58	3rd Qtr '57
. . . Down Here				
Idaho	5.3	7.5	7.1	....
Michigan	5.7	— 6.3 —		7.3#
Nevada	5.7	6.6	8.8	6.3
Oregon	5.9	6.5	10.4	....
Washington	4.9	6.0	9.1	5.8
. . . Up Here				
California	5.5	5.4	9.3	6.2
Texas	5.7	4.7	6.3	....
. . . Steady Here				
New York	6.0	6.0	7.0	....

Reported by state highway departments and the US Bureau of Public Roads
** Change from first half '58. ** Change from second half '57*
 # Second half '57

game, more and more are coming in.

One contractor says a larger number of smaller jobs is bringing new competition. He says a highway department that used to let a $12 million contract now makes three separate jobs of it. It means that if a big contractor wants to stay in highways he has to compete with a lot of little contractors who don't have his overhead.

Here's how one big building man sees the competition:

"What can you do against Ajax Co. whose only overhead is getting his bluejeans cleaned? When you're hungry, you go for every crumb. The real big jobs seem to be rare. Then when a plump one comes along, you should see who comes out of the woodwork to get it. Every contractor you can think of is there—including Ajax."

• **Some change their game**—Much of today's competitive picture in heavy construction and highways is shaped by movement of contractors from the building field.

While total new construction business is up this year over last, the private building construction market has lagged since its 1956 peak. This is largely due to the terrific drop in industrial building awards. But commercial buildings are also far below their 1956 pace, despite some gain this year over last year's low volume.

Result: Building contractors have looked elsewhere to make up for the slack in their new private building business. They have been competing harder for other types of work.

In highways, bid prices are down from last year in nine of ten states reporting quarterly bid prices to ENR. They are down from less than 1% in Colorado, Michigan and New York to an extreme of 32% in Idaho. Only Texas reported an increase in bid prices, a 9.7% rise. But Texas had not experienced the sharp 1956-57 rise in highway bid prices that came in most other states reporting.

Other states reporting lower bid prices are California, Nevada, Oregon, South Dakota and Washington. And the composite mile index of the U. S. Bureau of Public Roads is down 2.5% under a year ago.

• **Some shun the game**—One swallow doesn't make a spring. And neither do the reported cases of softening competition indicate a change in the over-all picture.

But there are instances of a drop-off in the number of bidders per job. It could be due to the step-up in highway contract letting that the number of bidders per highway contract in the third quarter was lower than in the first quarter in all seven states reporting to ENR.

There is apparently a second key reason: Contracts were being awarded so low that some contractors refused to bid. Prices in six of these seven states were lower in the third quarter than they were a year ago.

This softening in the competitive situation is evident in Idaho, Nevada, Oregon and Washington. In each of these states, the number of bidders decreased in the third quarter, but average bid prices rose.

Despite this softening in competition, reflected by slightly fewer bidders and higher bid prices, bids are still 4% to 32% under a year ago in these states. The profit squeeze is still on.

By contrast, competition is steady or stiffening in the major roadbuilding states—California, New York and Texas. And in California and New York the profit squeeze tightened up during the third quarter, judging by the lower bid prices.

• **Closer to the vest?**—Everywhere you ask, there are contractors fed up with the stiffer competition that has brought lower profits. Some admit they've been figuring each job so closely that only a break on weather or some other chance factor will put the project in the black.

Heavy construction contracts this year are giving contractors their second biggest annual volume of business in history. But making a profit on the huge amount of work is a bigger problem than ever.

Obviously, more and more contractors are finding the going too rough. A record number of them are going bust. Number of failures, however, is still small compared to the total number of contractors.

But here and there, thinking contractors are seeking and finding a few ways to beat the odds—at least once in a while. One time in five, one in eight, one in 20.

And once they get a job, they do all possible to come out of it with a profit. But they're definitely not happy with the stakes.

Russia Plans a Building Boom

New seven-year plan calls for 80% rise in capital investments for construction industry development

The Soviet Union will make a major effort to expand and modernize its construction industry. That's one of the key goals in Premier Nikita Khrushchev's new seven-year plan.

The broad plan calls for increasing industrial production 8.6% a year, compared to the U. S. rate of about 3% to 4%. If Premier Khrushchev succeeds, Russia would be producing about 50% as much industrial goods as the U. S. Its production is now only 40% of ours.

The new plan reverts to the Stalinist pattern of giving highest priority to the expansion of heavy industry at the expense of consumer industries. And it calls, in general terms, for a stepped up defense effort.

For construction in Russia, Premier Khrushchev outlined the following six-point program:

- Mechanization to the greatest extent possible. With few exceptions construction will be turned into mechanized assembly of buildings and other structures from blocks, sections and other prefabricated components.
- Capital investments for construction industry development will run about $28 billion during the seven years. That will be about 80% more than during the past seven years. U. S. construction industry outlays in the same period are expected to be $15 billion, a 26% rise. This includes construction equipment only, not trucks, cars, compressors or similar equipment.
- Production of precast concrete—described as the foundation of contemporary Soviet construction—will be increased about 2.5 times from the present level of 17-million cubic meters annually. The latter is about eight times the output in 1953.
- Reorganization of the industry will be pushed to save labor, and the industry will be formed into single regional construction organizations, each embracing highly specialized divisions within it.
- Expansion of the construction materials industries will be pushed too. Production of cement will be increased to 75-81 million metric tons in 1965, two and a half times the present levels. Output of slate will be boosted 2.5 times to 6-billion conventional tiles; soft roofing, two times to about 1.3 billion square meters; and window panes, 1.7 times to about 220-million square meters.

Production of asbestos cement will be pushed hard enough for some exports as well as Russian needs. The demand for asbestos products and particularly asbestos slate is increasing since the use of iron roofing for residential buildings has been outlawed. Introduction of plastic base construction materials made from petroleum and peat resins also will be pushed.

- Strenuous efforts will be made to reduce construction time and costs by greater concentration of capital investment and by increasing labor productivity. New projects will not be commissioned until financing and materials for the entire job have been assured. The idea is to finish each project quickly and avoid projects for which the materials and funds necessary for quick completion are not available.

Plans call for increasing labor productivity in the construction industry by from 60% to 65% over the next seven years through mechanization and more efficient organization.

Through these and other means Premier Khrushchev hopes to cut overall construction costs 6% by 1965 and residential building costs 14%.

• Big spending—Heavy demands will be made on the Soviet construction industry by all sectors of the economy in implementing the new plan. Over the next seven years, capital investments for industrial construction are expected to total $400 billion, up about 94% over the last seven years.

Comparable U.S. outlays in the same period are forecast at $300 billion, a 34% rise. This includes industrial building, public utilities and conservation and development. It excludes public service enterprises.

Investment in Russian housing and community buildings is planned to total $94 billion, up about 83%.

Construction of educational, cultural, and health service buildings will run up to $19 billion, an increase of about 79% over the last seven-year period.

U.S. outlays for all types of public buildings, public and private housing, and education should rise 35% to $199 billion in that period.

A huge expansion of the iron and steel industry is planned: Pig iron production is slated to rise between 65% and 77%; steel production, between 56% and 65%; and rolled products output, between 52% and 64%.

Output of the aluminum industry is to be boosted 2.8 times and of the copper refining industry 1.9 times. Other branches of the nonferrous metallurgy industry will be expanded too. A big new aluminum fabricating center is due to be constructed.

Russia hopes to triple chemical production by 1965, with emphasis on synthetic fibers and plastics. This will involve building 140 large new chemical plants and reconstructing 130 others.

The seven-year plan calls for doubling the output of petroleum and increasing natural gas production by five times. The Russians will lay 16,200 miles of gas pipelines.

About 60-million kw of new electric power capacity will be built during the plan period; about 50-million kw will be in thermal power plants. This is planned to increase power production 2.3 times.

All state farms and about 12,500 miles of railways will be electrified.

Output of the machine building and metal working industries will be doubled according to the plans calling for the construction of many new factories.

Railroad development also will be pushed. Plans call for 5,625 miles of new trunklines, 5,000 miles of double track, 625 miles of local railroad lines and completion of the south Siberian and central Siberian rail systems.

Highway mileage planned in the next seven years will be three times what it was in the last seven years. Most of the new highways are paved.

Finally, the plan calls for the construction or reconstruction of more than 90 major airports.

• Can they do it?—U. S. officials give Premier Khrushchev an even chance of substantially achieving his goals. It will be tough going. It means new sacrifices for the Soviet citizen.

Here are some of the factors underlying his chances.

The Soviet Union is heading into a decade of severe labor shortages because only a small crop of war babies is coming of age.

Plans to put youngsters to work at 16 instead of 18 will help. But this won't affect the total labor supply over any length of time.

The Soviets claim to have demobilized nearly 2 million soldiers in the past two years. If true this would help a lot.

Soviet plans rely heavily on greater productivity resulting from more efficient use of people and resources.

The 1972 goals are proportionately much lower than those of the 1959-65 plan. This could be to allow Mr. Khrushchev to merge the two sets of goals in an attempt to save face if lags occur.

FHA Streamlines Housing Standards

- **Peformance standards and over-all requirements will replace detailed rules and specifications**
- **Local approval will be easier to get**
- **Changes may encourage revision of antiquated housing codes used by some communities**

New minimum property standards released last week by the Federal Housing Administration will open up fresh opportunities for faster progress in design and construction of one- and two-family houses. They will replace the current minimum property requirements (MPR's).

Flexibility and simplicity are keys to the new criteria for government-underwritten homes. Present rigid rules and detailed specifications give way to performance standards and over-all requirements. This will allow varied approaches by designers and builders. Quick action is also made possible for FHA acceptance and approval of new methods and materials that come forward in the future.

The new standards were three years in the making, in cooperation with the building industry. They'll all go into one 300-page book, instead of the 23 regional manuals now used.

National standards, however, won't rule out approval of local standards to meet special housing requirements in any of the 75 FHA field offices that can show specific needs in their territories.

These additional local standards will get prompt approval wherever they are necessary. Many have been approved for a long time and are included in regional MPR's.

April 1 is the target date for putting the new standards into effect. The intervening months will be used to acquaint government staffers and housing industry people with the philosophy, purpose and application of the new criteria. If the industry finds the time too short, FHA Commissioner Norman P. Mason says he will postpone the effective date.

Builders, prefabbers, materials manufacturers and suppliers, along with architects and engineers, worked with FHA's architectural standards division and its industry advisory committee during the drafting. Comments then were invited from more than 2,000 industry people.

FHA's massive standards modernization will have effects beyond government-backed housing, industry observers think. There is hope the new FHA standards will encourage revision of antiquated building codes used in many communities today. These codes govern all types of local construction.

In the federal field alone, the new standards will apply to VA housing as well as to FHA. Appraisers and construction analysts from most of VA's 65 regional offices will attend indoctrination courses in Washington next month, along with the chief architects from all the FHA field offices. These two agencies are responsible for about 30% of all private housing starts.

Like the existing FHA regional requirements, the new standards set the minimum level of quality that an agency insuring office can accept. Most builders go above the minimums on many features of the houses they construct.

But now, if a house is above the minimum standards, builders will be able to obtain a higher appraisal value from the FHA. Therefore, the new standards will allow builders even more latitude in the matter of house planning and in the selection of materials and methods to improve quality or make a saving without impairing worth.

Faster acceptance of new and unusual methods or materials will be possible. Local FHA field offices will be permitted to accept variations from the standards in specific cases, provided the alternate method or material meets the performance requirements. However, before the new feature is adopted for wider use in a community or a region it must be approved by headquarters.

These local acceptable standards have been broadened to include alternate materials and products generally. Previously, acceptance by FHA has been limited to lot improvements, utilities, landscaping and the like.

On the other side of the coin, the new standards no longer permit the chief architects of local offices to impose higher requirements on some properties than on others. Any such variations will first have to get Washington approval.

Here Are Some of the New Standards

Minimum lot size is not specified. It is determined by the area needed for the house, laundry yard, building setback, light, ventilation and other considerations. As long as provision for these is adequate, the house may be placed anywhere on the lot.

The minimum house is smaller. Each living unit must have at least two habitable rooms and a bathroom. In a two-family house one unit may be an efficiency unit. The old MPR's specified at least three habitable rooms and a bathroom for each unit.

Room sizes are slightly larger. For a two-bedroom house with a separate dining room, the minimum area of living room, dining room, kitchen and bedrooms is 500 sq ft, 50 ft more than the old MPR's required.

Bedroom sizes are more flexible. An over-all area of 280 sq ft, for example, is specified for a three-bedroom house. The smallest bedroom must have at least 80 sq ft.

Halls must have a minimum 3-ft width. No minimum was specified in the old MPR's.

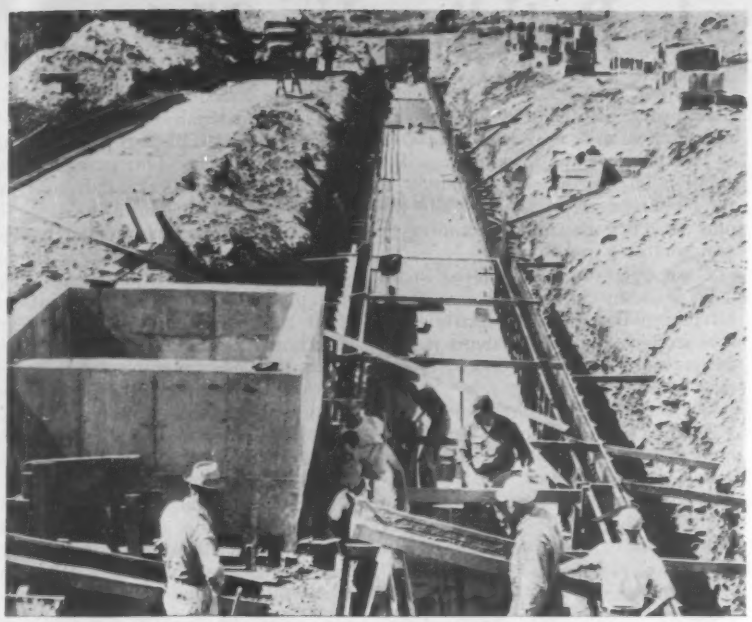
Ceilings may be lowered from 7 ft to 6 ft 9 in. in the basement and from 7 ft 6 in. to 6 ft 8 in. in halls and baths. Other ceilings may vary to a total room average of 7 ft 6 in. The old MPR's required a minimum of 7 ft 6 in. on the main floor, in most places.

General storage requirements are increased from 300 cu ft to 425 cu ft. They are also more flexible. Of the total, 25% must be inside, 50% outside. The other 25% can be either inside or outside storage.

Kitchen storage requirements are about the same as before, but allow more flexible design of drawers, shelves and cabinets. The old MPR's call for at least 50 sq ft of wall and base cabinet shelving, the same as the requirement for a three-bedroom house.

Inside kitchens are acceptable, as well as the inside bathrooms and utility rooms that were previously allowed. These inside rooms permit more efficient use of space and greater freedom in design. Artificial light and mechanical ventilation may be used in them.

Individual sewage disposal systems are increased in size, about 50% over the old requirements. The increase applies to the entire system, including septic tanks, drainage fields and seepage pits.



Land 'Ocean' Will Test Cable

Conditions two miles below the ocean surface will be duplicated in a test structure being built by Bell Telephone Laboratory engineers at Chester, N. J.

The company wants to find out how, why, and what physical changes take place in aging undersea cables. Engineers will then be able to design cable systems to overcome attenuation (weakening of the signal impulse) due to aging.

The test structure is a 310-ft-long concrete trench 8 ft wide and 3 ft deep. It will be covered with precast slabs and 4 ft of earth. The trench will be filled with fresh water and cooled to 37F by refrigeration coils cast in the trench walls.

The cables under test will be enclosed in steel tubing placed in the trench. The tubes will be filled with water of the same salinity found at the two-mile depth and pressurized to 5,000 psi. Tensions occurring during cable-laying operations will be simulated.

The testing is expected to last from five to ten years.

Bell Labs found that construction and operation of the land-based structure reduced costs by 75% over actual sea testing. More accurate control is also possible. The cables are each 630 ft long and are looped back through a pair of pipes to make both ends of the cable accessible at one end of the trench.

O. D. Grismore and J. W. Phelps, Bell engineers, designed the structure.

How Many Plants Can a Stream Handle?

Sanitation difficulties threaten to hold up major construction in a 9,000-acre area outside Louisville, Ky.

Jefferson County health officials say they won't allow any more sewage treatment plants on a small stream draining the area. They say six small treatment plants now emptying into the stream already pose a major pollution problem.

The area is not served by sewers and individual residential and commercial developments are served by the treatment plants or by septic tanks.

The health department says it will turn down a request for a treatment plant to serve a huge shopping center. It also indicates it will refuse several other requests for plants to serve a residential development, a new university and another shopping center.

A number of subdivisions served by septic tanks are planned for the fast-growing area and the county indicates these proposals will have to meet stiffer requirements.

City and county officials agree the immediate solution to the problem would be the construction of a $2.5 million sewer system. But this plan faces obstacles also. The area would have to be annexed to the City of Louisville in order to empty into sewers of the metropolitan sewer district. But the district doesn't know how to finance construction at present.

Industry Fears Unwise Air Pollution Controls

How to clean up the nation's air without shackling the industries that dirty it got considerable thought last week. The occasion was the country's first National Air Pollution Conference. Sponsored by the U. S. Public Health Service, the meeting drew 900 industry and government representatives to Washington (see editorial p. 96).

There was no question about the real concern of conference delegates over the harmful effects of air pollution. But surging below the surface was another major concern: that the public might be panicked into getting a batch of air pollution control laws adopted that would cripple industry.

Industry people strove hard to impress this idea on their government counterparts: Close liason on the growing problem—included a sharing of costs—should be established between industry and government.

Polluted air is already costing the nation anywhere from $3 billion to $4 billion a year, William R. Bradley, of American Cyanamid Co., told the conference. And before controls are effectively worked out, dollar outlays by both industry and government are going to be staggering, he said.

Most conference representatives look for widespread adoption of a new system of zoning regulations in the near future. Instead of "location" controls that are now widely used, cities are expected to shift the emphasis toward "activity" controls.

Jersey Towns Seek Ouster Of Sewerage Commission

Twenty-two New Jersey municipalities have threatened to introduce legislation that would abolish the controversial five-member Passaic Valley Sewerage Commission.

Resentment and bitter feelings have been simmering ever since the governor-appointed commission was charged last May with mismanagement and misjudgment. A grand jury investigated the charges and recommended that the group be dissolved.

The situation is now boiling to a climax (ENR June 5, p. 22). A nine-man committee of mayors and engineers representing the municipalities are acting to topple the commission. For all practical purposes, the commission is already defunct. The towns now want to take over its functions. The towns want a voice in policy and representation on any commission permitted to manage sewerage operations. However, they have no definite plan yet.

The original accusations stemmed from the increase in cost of a sewerage project from $9 million to $21 million.

Use of Plastics in Building Up 25%

Thirty million pounds of reinforced plastics will be used in construction this year. That's the estimate of plastics manufacturers attending the eighth National Plastics Exposition in Chicago last week.

The figure represents a 25% increase over last year. And next year promises to show still greater gains.

Few industries can claim such rapid growth. During the past 10 years the plastics industry has been growing five times as fast as the total of all U.S. industry. Today it's a $2 billion a year business.

Last year it produced 4.3 billion pounds of plastics, an increase of nearly 100% during the past five years.

Production of reinforced plastic building panels for both interior and exterior construction has grown particularly fast. And it promises even a better future.

This fact was emphasized in prepared papers and open discussion. It was also dramatically illustrated by exhibits at the five-day conference.

The conventional reinforced plastic sheet, either corrugated or flat, is still the most frequently used plastics material in the building industry. But the "sandwich" panel is now being used in ever increasing volume.

The sandwich panel has great potential for interior use, where it can be decorative as well as functional. Architects and builders like it for its dramatic interior effect. It can be highly colorful and transmits a soft even light with unusual patterns.

Sandwich panels can also be used for room dividers, non-load-bearing partitions, drop ceilings, curtain walls, doors, screens and skylights. In general, these panels are made with two flat, polyester glass sheets laminated to a core. The core can be made of a variety of materials including aluminum and honeycombed treated paper.

• **Building market outlook**—The building industry represents a tremendous future market for the plastics industry. But there are two schools of thought on how plastics can best serve construction.

One school says plastics should imitate other materials and substitute for them; plastic piping and plastic bathroom tile would be examples of this point of view.

The second approach is to change the forms in the building components so that plastic materials become the only logical solution. One dramatic example of this is the so-called sky dome. This could not economically be duplicated in glass.

Another example is the corrugated plastic sheet reinforced with fiber glass now used in industrial construction.

The plastics industry is now selling about $200 million of its products to the building market annually. But this only scratches the surface, according to some industry spokesmen.

Great opportunities lie ahead in the fields of plastic curtain walls, large translucent building elements, plastic pipe, roof sections and smaller items such as gutters and flashing, and doors and window casements.

• **Building code headaches**—One of the industry's biggest problems is building code requirements.

Until quite recently many building codes have been written without regard to the possible use of plastic materials. When some of the codes were written, for example, glass was the only material available for transmitting light. Therefore only glass is specified for glazing.

This isn't a local problem. It applies to some regional building codes sponsored by building officials. This is true even though they are primarily performance codes, not specification codes.

Plastic materials have had relatively smooth sailing in some phases of the building industry. One example is the insulation of electrical installations and components in the housing field.

But the plastic pipe industry has had and is still having considerable trouble with building code requirements. The big problem is demonstrating satisfactory and consistent compliance with functional requirements.

In some cities plumbing codes define acceptable pipe in terms of its composition. But even these codes usually leave the door open if equivalent performance can be shown on the part of pipe made from a material not specified.

Despite the tough time it has had in gaining acceptance in the field of light transmission, plastic materials, manufacturers say, materials can do as good a job as glass, reduce weight and eliminate the hazard of breaking and shattering.

But one drawback is that all the plastic materials available for light transmission are combustible. This is also true of plastic materials used in finishes and structural members.

Concrete Shells Make a Cover

Concrete hyperbolic-paraboloids, 34 x 55 ft, cover the center mall at the Cortez Shopping Center midway between Sarasota and Bradenton, Fla.

The 18 concrete shells are each supported on a 24 x 24-in. concrete column. The shells are connected in three separate groups along the 592-ft mall. The first group of six rises 18 ft; the second series of four is 24 ft high and the last eight, 18 ft tall. Cables in the edges of the shells were tensioned with a force of 9 tons.

Architect for the center is Edward Dean Wyke of Bradenton, Fla., in association with Douglass Lathrop of New York City. The paraboloids were built by Sam P. Johnson, Sarasota engineer.

NYC Schools Stir Up a Storm

- **"Waste and extravagance," charges a city official**
- **"Pure poppycock," architect replies**
- **"Wild conjecture," says education official**

New York City's chief fiscal officer dropped a bombshell last week on the Board of Education's building plans.

It came in the form of a charge by Controller Lawrence E. Gerosa that poor planning and extravagance in school construction have wasted more than $100 million of taxpayers money.

Although school officials are now making their official rebuttal, the allegation has shaken prospects for a $500 million school construction bond issue—which Mr. Gerosa opposes. The issue is up for approval before the state legislature in 1959. That's the last step before putting it to the voters.

In a 20-page report, the controller charges the Board of Education with poor planning, uneconomical school site selection, errors in building design, excessive alterations and extravagance in artistic embellishments (see editorial, p. 96).

All of these, Mr. Gerosa said, add up to the waste of 20% of the $500 million spent by the city on school building since 1951.

He argued that construction should be slowed to come within the limits of available city finances.

His report was released first to the press. It came in the midst of budget hearings by the Board of Estimate and caught school officials and architects by surprise. But they were quick to defend themselves.

"These figures are pure poppycock," said L. Bancel LaFarge, president of the New York Chapter of the American Institute of Architects.

"False, unsound, fanciful and full of wild conjectures," said Charles J. Bensley, chairman of the school board's committee on buildings and sites.

• **The charges**—Mr. Gerosa's report spelled out these complaints:

• The board made most new schools an individual design, more standardization would have saved money.

• For five reused plans, the board paid the architects approximately 40% of their original fees, although contracts provided for free reuse.

• Expensive sites were chosen over more economical locations.

• Architects charge the board of higher education more than they do any other city department. School architects get 5% to 6% of the total construction contract as their fee. The usual fee for nonschool design is 4%.

• In the eight-year period some 11,500 change orders added $5 million to school costs.

• Money was spent "lavishly" on "unnecessary" embellishments. These include the use of different materials to form combinations of colors, hues and shapes; combinations of metal and glass with and without masonry; unusual building shapes; expensive mosaics; large, decorative lobbies; expensive locker-room finishes; unnecessary auditorium lighting equipment; drinking fountains in each classroom.

• **How to save money**—The report suggested these economies:

• Adopt a "true reuse policy" for new schools using available plans.

• Eliminate architectural embellishments and costly designs.

• Reduce heating requirements by eliminating the use of metal skin and continuous window-walls.

Mr. Gerosa's report was based on a study conducted by his office's Bureau of Engineering.

• **The defense**—"Of course, costs can be whittled on any building project," countered architect LaFarge. "But do we want our schools to be mistaken for factories, prisons or warehouses for automobile parts?"

Stephen Nolan, partner in Chapman, Evans & Delehanty, said "It's ridiculous to use old fashioned materials on buildings that are a part of our age. The school building itself serves as an educational tool for our children."

And about mosaics and murals, John C. Moore, chairman of the New York chapter's school committee pointed out, "The proportion of expenditures for such items to total expenditures on any one job is infinitesimal."

Several of the architects whose designs were singled out by Mr. Gerosa's report said variety is no more expensive than uniformity.

Robert J. Smith, partner in Eggers & Higgins concluded, "Seeming luxuries, moreover, are often necessities. A big lobby, for example, is almost a must for a school whose pupils are attending double and triple sessions."

• **Exorbitant fees?**—Not so say the architects. The 4% Mr. Gerosa referred to does not hold true for "complicated" jobs. Junior high schools and high schools require design of special labs, facilities for special equipment, and special lecture rooms.

Mr. Moore summarized the group's stand on design standardization and reuse of plans: "Site conditions and requirements vary so much throughout New York that this procedure can seldom be adopted." Even in reuse of plans "where additional fees have been paid, these were for necessary design changes, which are often extensive."

Some of the variations include: new site requirements; new planting plan; changed grade conditions which require changes in building entrances; different orientation leading to changed heating and cooling loads; different sewer locations necessitating a new cellar plan; and redesign of foundations.

One of the incidents that touched off the dispute was the board's purchase of $9,000 worth of blue glazed brick. The board approved the purchase on esthetic and practical grounds, but in defiance of the city's Board of Estimate.

Architect Max Abramovitz, of Harrison & Abramovitz, had pleaded for the brick.

"The school," he said, "is in a dreary neighborhood and everything in the area contributes to a youngster's not wanting to go to school. We not only wanted the building to look less dreary, but we had a practical reason. The school is near a plant where everything is affected by dirt. These glazed, self-cleaning bricks would be washed clean by rain and keep their appearance for many years."

Because of a legal technicality, the bricks eventually cost the school board $27,000. This was cited by Mr. Gerosa as an example of waste.

Tunnel Under Drive Will Break Traffic Jam

One of Chicago's biggest traffic bottlenecks will be eased with construction of a $2.2 million tunnel to be built at the intersection of Oak St., Michigan Ave. and Lake Shore Drive. Jams there have backed up rush-hour traffic for a mile.

Public Works Commissioner Lloyd M. Johnson estimates that construction will start next spring.

The job should take about 15 months to complete.

The city and Cook County have agreed to share half the cost; federal funds will cover the remainder.

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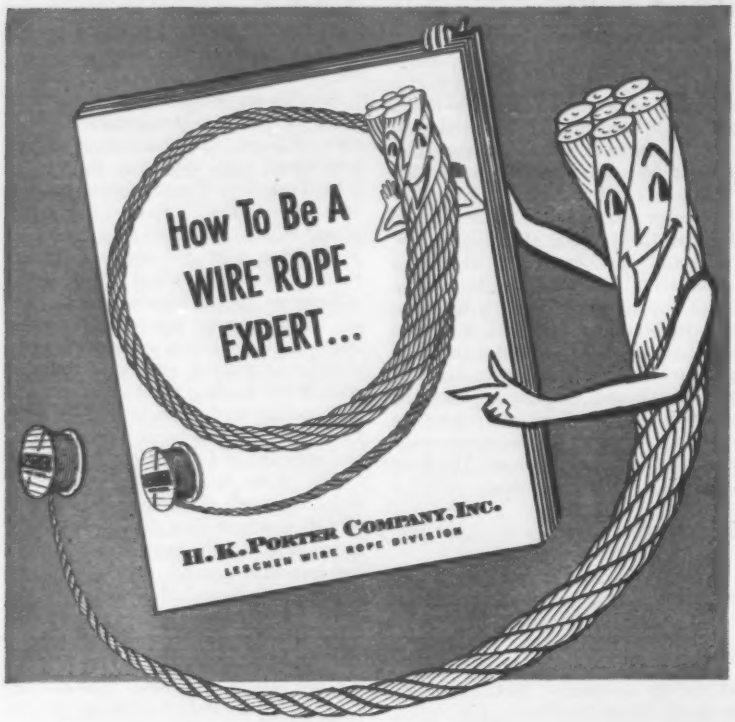

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How to Use Computers Is Subject of ASCE Meeting

Potential uses for high-speed, electronic, digital computers were explored last week by the Structural Division of the American Society of Civil Engineers.

Elmer C. Kubie, president of Computer Usage Co., New York City, outlined the steps to follow in using a computer; formulate the problem; define it; analyze it mathematically; plan the computer's strategic use; program the problem; code it—prepare instructions for the machine; test the program; solve the problem on the computer; analyze and interpret the results.

The 400 persons attending the Kansas City meeting heard how the computers had brought seemingly inaccessible solutions within the reach of engineers.

Capt. Gordon M. Gray, instructor, U.S. Air Force Academy, showed how to proportion a steel-truss roof to obtain a minimum weight design.

John W. Melin, University of Illinois research associate, described numerical integration by computer in the analysis of the behavior of multi-story buildings subject to blast loading.

Several speakers called for more emphasis on mathematics in college—they cited a special need for matrix algebra and numerical analysis.

Other speakers discussed the use of computers for analyzing rigid frames, continuous girders, trusses and suspension bridges.

BPR's Computer Library Has 180 Highway Programs

The electronic computer library established by the U.S. Bureau of Public Roads now holds 180 different programs for use in the highway field.

The programs have been supplied by 17 state highway departments, 20 consulting firms, the Corps of Engineers, MIT and other organizations.

Of the total, 84 programs are in the field of highway location and design including earthwork quantity computations; 62 are in the structural field; 11 in traffic, five in soils; four in hydraulics; one on equipment cost accounting; and 13 involving miscellaneous problems that are concerned largely with trigonometry and geometry.

Sixteen of the programs have been converted to "library form," so that they can readily be coded for use with any computer. Others will be converted, but are now applicable only to a particular computer.

The programs may be obtained by applying to the Bureau's Division of Development, Office of Operations, Washington 25, D. C.

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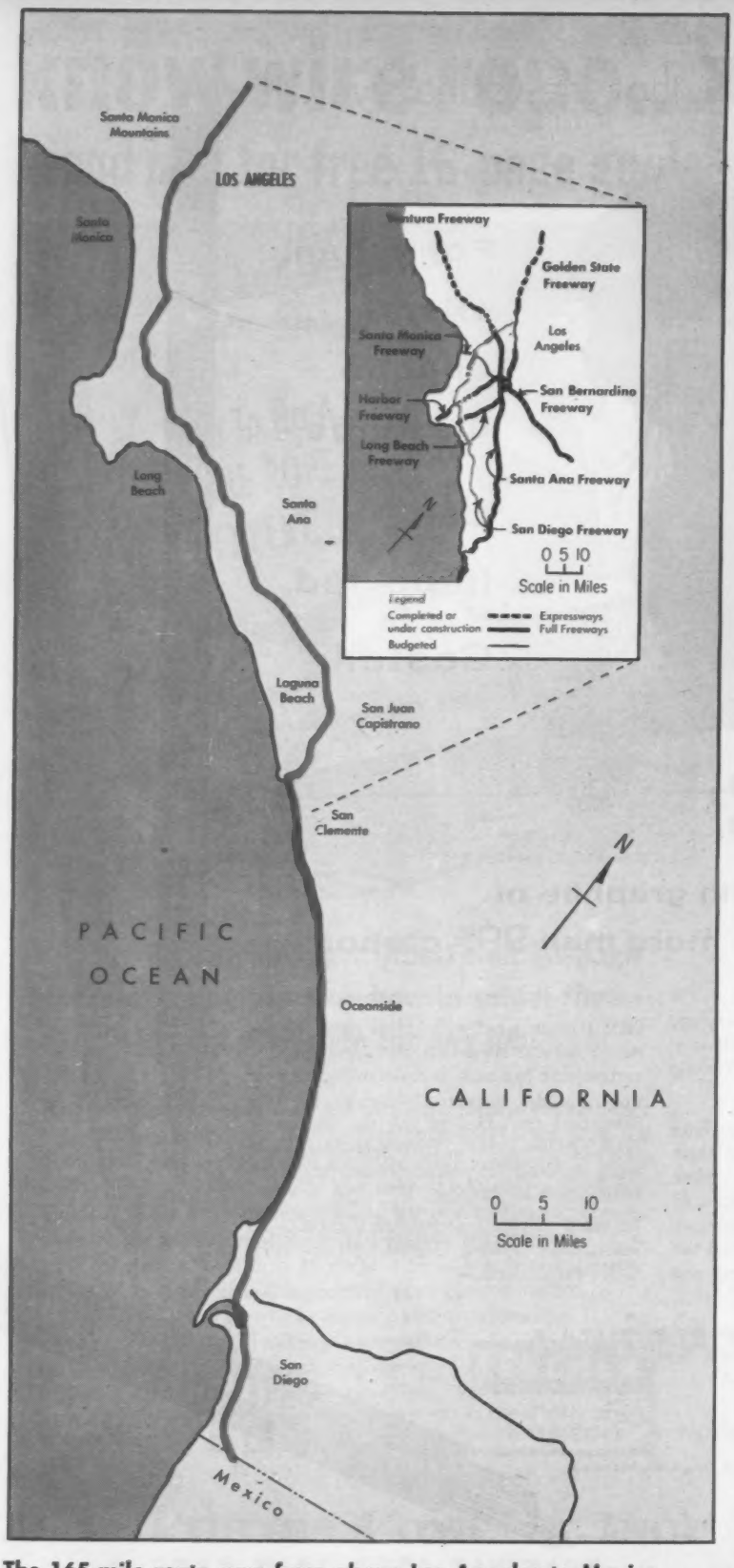

The 165-mile route runs from above Los Angeles to Mexico.

San Diego Freeway bypasses p of Lo

Big Freeway W

One of the great freeway construction programs of this era is moving rapidly ahead in southern California.

It's the San Diego Freeway, a 165-mile route that extends from the Mexican border to well north of Los Angeles. Cost of the work will approach half a billion dollars.

Some short portions are complete and in service. More is under construction or will be soon. And designers are working on most of the rest of the route.

Because this freeway is in almost all stages of development, it serves as an excellent example of an interstate highway program.

The route has two primary functions:

- It bypasses the central part of Los Angeles to the west and south. In so doing it cuts through extensive residential, commercial and industrial areas.
- And it serves as a high-speed direct connection between the Los Angeles metropolitan area and San Diego—the latter is currently exhibiting the most explosive growth of any major U. S. city.

of Los Angeles, cutting through residential and industrial areas.

Will Link LA, San Diego, Mexico

Most of the 165-mile freeway will be constructed to eight-lane width. Traffic is expected to reach 80,000 to 100,000 vehicles per day by 1980. The higher figure generally includes traffic on collector roads that bring width to ten or twelve lanes. But if the history of other southern California freeways is repeated, peak traffic will be reached on some stretches many years before 1980.

• **Challenge for the contractor**—Many interesting and challenging problems are encountered in development of the road. For example, in cutting through the Santa Monica Mountains to provide a connection between the San Fernando Valley and West Los Angeles more than 14½ million cu yd of excavation is required. The biggest single cut is substantially in excess of 8 million cu yd.

In contrast to this, on the flat coastal plain near Long Beach a 155-acre site has been purchased to provide 9 million cu yd of borrow.

On the southern end in San Diego County, main problems are converting the existing U. S. 101 to interstate standards and cutting a major freeway through the heart of downtown San Diego.

Lesser problems in the development are selecting alignment to prevent purchase of expensive oil wells and phasing the freeway in with construction of intersecting freeways for minimum traffic disturbance.

• **Fame yet to come**—Although destined to become one of California's greatest freeways, the San Diego Freeway is not yet well known. No significant portions of the freeway have as yet been undertaken in the San Diego area. Even in Los Angeles, where the first 2-mile section was open to traffic early in 1957, the full impact of the freeway has not yet reached the motoring public.

The name "San Diego Freeway" is therefore not in general use. But, by 1965 when the section through downtown San Diego and most of the Los Angeles County work will be done, the San Diego Freeway will be as well known as the Hollywood, Harbor and Pasadena freeways.

In the Los Angeles area the freeway generally follows the existing Sepulveda Blvd., which became a state highway in 1933. Planning in more recent years has been aimed at converting this route to a freeway.

When the interstate highway program was adopted by Congress the San Diego Freeway was made part of it. It is therefore eligible for 90% federal financial participation.

• **Financing it**—Cost of the San Diego County work is estimated at $130 million for construction and $50 million for right-of-way. In Los Angeles and Orange counties construction will cost just over $200 million and right-of-way will cost nearly $100 million. That brings the total to $480 million.

The recently announced 1959-60 California highway budget includes these figures for the project: $33.5 mil-

IN MOUNTAINS west of LA, construction requires 14½ million yd of excavation.

IN CITY of San Diego work will start next year on an eight-lane section that will run close to the business district. Several complex interchanges will be built.

lion in Los Angeles County, $8.5 million in Orange County and $22 million in San Diego County for construction and right-of-way purchase. That may not seem much as compared with the $480 million total project cost and $610 million total 1959-60 statewide budget. But $80 million for Los Angeles and Orange counties has already been spent or budgeted (up to June 30, 1959). Future spending rates should increase.

It seems probable that the northern half of the freeway will be financed within the next four years. If so, all of that portion should be open for traffic by late 1965. As need is less acute, much of the southern part of the work will proceed more slowly. But it could well be completed within about four years of the other sections.

More than half of the required right-of-way funds have been spent in Los Angeles and Orange counties. On the other hand, right-of-way purchase is just getting under way in San Diego County.

The work is under two districts of the California Division of Highways. The 73 miles in San Diego County is handled by District XI under Jacob Dekema, district engineer. The 92 miles in Los Angeles and Orange counties is administered by District VII, with an assistant state highway engineer, E. T. Telford, in charge, assisted by district engineers A. L. Himelhoch and Lyman R. Gillis.

• **Follows Interstate design**—Design standards in general follow those prescribed for the Interstate program. Much of the alignment is designed for 60 mph nonpassing sight distance; the rest of it has a 70 mph design speed.

Some of the work already designed or under construction has a 22-ft-wide median strip dividing eight traffic lanes. In noncongested areas the designers are utilizing a 36-ft median strip. This, of course, takes lots of area since the minimum right-of-way width for an eight-lane freeway with a 36-ft median is 208 ft.

Most of the freeway construction has portland cement concrete pavement Purpose is to achieve a minimum amount of maintenance, the engineers say. Once the roads get to carrying their full traffic load it will be almost impossible to close them off for resurfacing.

Approach ramps and shoulders, on the other hand, are almost entirely built of asphaltic concrete.

Generally the designers are attempting to keep the road above ground passing over existing streets. This is to provide best possible drainage. For

News about Allis-Chalmers construction machinery . . .

Tractor power helps build Navajo Dam...40 stories high

Morrison-Knudsen Co., Inc. is sponsoring contractor on the Navajo Dam job in a joint venture with Henry J. Kaiser Co. and F & S Contracting Co.

Right now, the dam you see here exists only in the minds of its builders. Spanning a sun-baked canyon in New Mexico, it will create a lake 37 miles long . . . enough water to irrigate many thousands of thirsty acres. But towering Navajo Dam, one of the world's largest earth-fill structures, will take four more years to complete. Sponsoring contractor is world-famous Morrison-Knudsen . . . already moving the first of 26 million yards of dirt and rock that will test tractor performance and dependability as severely as any job can. M-K's choice — big Allis-Chalmers crawlers with turbocharged diesel power, hydraulic torque converter drive, and the toughest track ever made. Allis-Chalmers, Milwaukee 1, Wisconsin.

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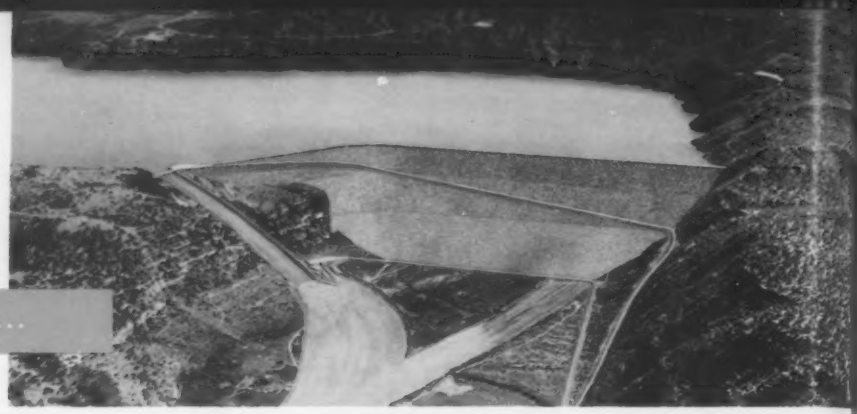
OVER

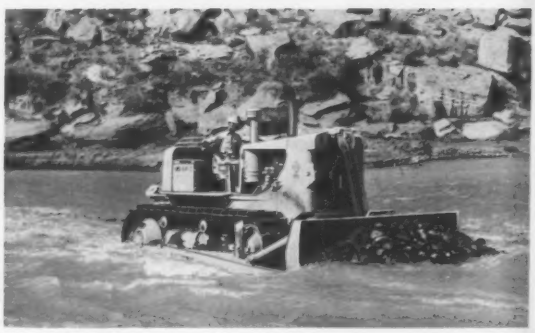
How it will look—The finished dam will be 3800 feet wide, 3200 feet thick at its base . . . and will create the biggest body of water in New Mexico.



picture report.....

Allis-Chalmers big HD-21's get Navajo Dam under way

24-foot-wide dozing team—Torque converter HD-21's match power and speed precisely, as they work together to push huge mounds of dirt and rock over the cliff to prepare for construction of a spillway.



No worries about river work—Positive-seal protection of vital track parts lets the HD-21's doze rock from the river bottom to form approaches for a temporary bridge without fear of lubricant loss or track damage.

Heavy-duty power for heavy-duty haul roads—Big Allis-Chalmers Forty Five motor graders fit the Navajo job to a "T." Clean, uncluttered design lets operator see both ends of the moldboard easily as he cuts a roadside ditch.

Four plus yards at a crack—This Allis-Chalmers HD-21G, biggest tractor shovel available anywhere, is helping to load about 40,000 yards of rock and dirt to clear the way for construction of a diversion tunnel.

See for yourself why Allis-Chalmers equipment was chosen for the Navajo Dam job. Your Allis-Chalmers dealer will demonstrate machines to fit your requirements . . . on your job—no obligation. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin

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AC

Litho in U.S.A.

example, in a 14-mile stretch in southern Orange County the road is elevated on fill; so there is not a single pump for drainage purposes.

A design problem in the Long Beach area is to hold destruction of oil wells to a minimum. The route in this area was officially adopted by the highway commission in 1953. All wells drilled since then have been outside the right-of-way. Actually some of the wells that had to be purchased were very low producers and not very costly.

Current construction emphasis is centered in four areas.

In one area near the north end the freeway will pierce the Santa Monica Mountains connection the San Fernando Valley with West Los Angeles.

In a second, just north of Long Beach, the route intersects three other freeways in a low lying coastal plain.

Further south, in southern Orange County, two contracts are under way and one has just been completed totaling 1¼ miles of freeway.

In the heart of San Diego work will start soon centering on a four-level grade separation.

• **Huge mountain cut**—Excavation in the five miles through the Santa Monica Mountains totals 14½ million cu yd. Biggest single cut at the summit is nearly 9 million cu yd. This is second to the Carquinez cut—the biggest single excavation in California highway history (ENR Oct. 4, 1956, p. 36).

The major problem in the Santa Monica Mountains area is effective disposal of excess excavation. About 5 million cu yd of the total is used in fills in the mountain pass area. But 9½ million cu yd is being used as fill in nearby highway programs.

The construction schedule in this area has been controlled by effective sequencing of jobs making use of the excavated material. Result is that excavation is being moved to five different San Diego Freeway sections and two sections of the Ventura Freeway (this artery crosses the San Diego Freeway just north of the mountains).

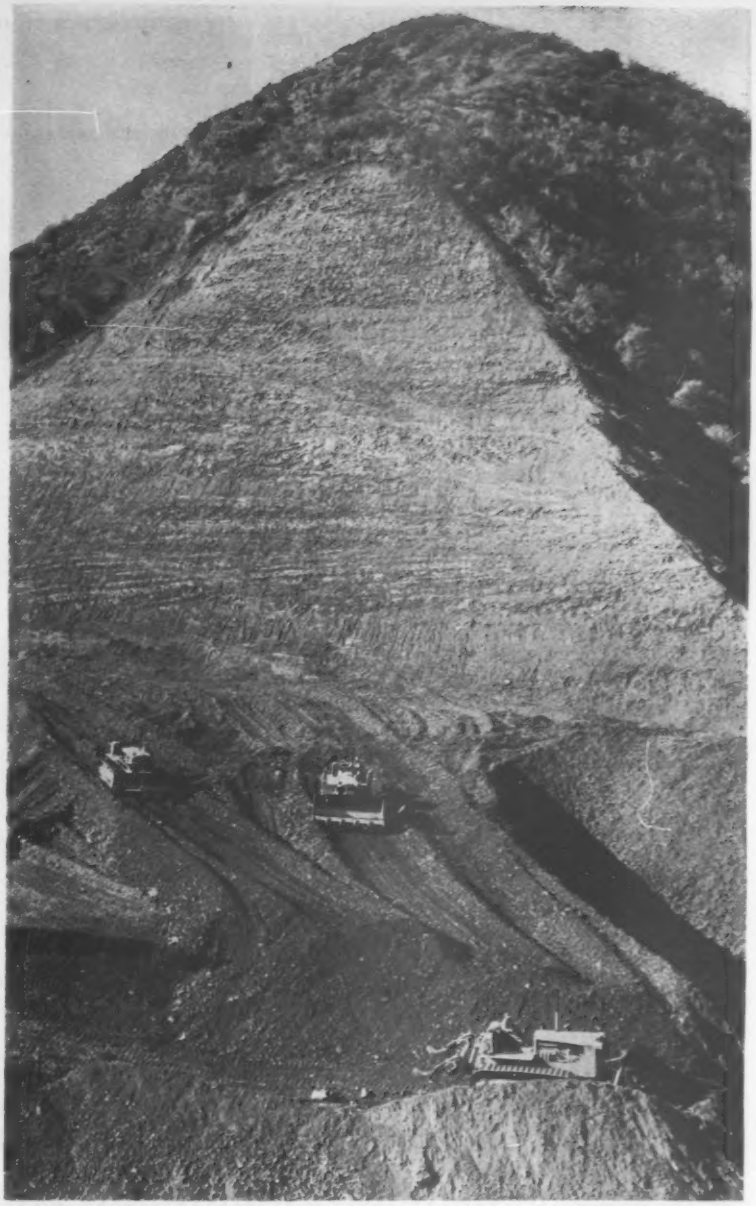
First excavation, totaling 500,000 cu yd, went to the first 2-mile section of the freeway just south of the mountains. Just as this work was completed another contract for 3½ miles was awarded that took a million cu yd. This stretch is nearly completed and a $5 million contract has just been awarded for a 2¼-mile extension that will take 1¼ million cu yd. (The award was made to Guy F. Atkinson Co. after low bidder J. A. Thompson & Son, Inc., at $4.5 million, refused to accept. Thompson claimed a bid mistake). Thus, 2¾ million cu yd of material is moved south of the mountains.

First work to the north was the intersection of Ventura Freeway and San Diego Freeway. This interchange was built ahead of its normal sequence for two reasons. One was to use 1¼ million cu yd of mountain excavation. The other was to have the interchange completed so that the construction would not disrupt Ventura Freeway traffic.

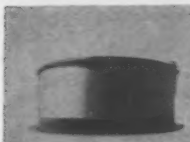
Now that the Ventura-San Diego Freeway interchange is completed, two contracts are under way on the Ventura Freeway that will take 2½ million cu yd of the excavation.

This leaves 3 million of the 9½ million cu yd unaccounted for. A later contract will include removal of this excavation and placing it in a 4-mile section of the San Diego Freeway north of the Ventura Freeway interchange. This job will involve fill placing only. A contract will be awarded later for structures and surfacing.

• **Varied excavation methods**—Contractors are encountering variety of geological formations including sandstone, shale, disintegrated granite and contact slate. Fortunately almost all of it can be removed without blasting. All of it makes good highway fill, and some se-



BIG CUT in Santa Monica Mountains indicates why freeway earthmoving will exceed 14 million yards. Biggest single cut will top 8 million yards.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. . . Freeway contractors favor bottom-dump trailers

lect material can be developed for subbase and base course work.

Methods of excavating the Santa Monica Mountain's material vary. Material is developed by shovel on a contract held by Peter Kiewit Sons' Co. to the north of the mountains.

Bulldozers were used on a Guy F. Atkinson Co. contract south of the mountains. They pushed material from a steep cut into the hopper of a belt loader. Some material has been handled by front end loaders.

Length of haul has weighed heavily in favor of truck use. And some hauls are over city streets. Carrying scrapers have so far been almost completely ruled out.

Contractors generally are using big, bottom-dump, tractor-trailer units. Although the units vary, capacity is in the 24 cu yd range. Where material must be moved over city streets these heavy trucks are loaded to only half capacity to keep them within the legal load limitations. But, in some cases the work is programmed so hauling is separated from city streets. Here the units can be loaded to full capacity.

On the recent Atkinson contract, fill rates averaged 8,000 cu yd a day and reached a maximum of 11,000 cu yd. Material was compacted in 6-in. layers by a 47-ton grid roller.

Once the jobs now under way in the Santa Monica Mountains area are completed, a final 3.9-mile contract will be awarded to finish that portion of the work. Additional contracts will be bid in 2- or 3-mile increments extending the freeway south and west toward the Long Beach area. Future contracts will also complete the work to the north to the junction with the Golden State Freeway.

• **Borrow acreage purchased**—A second major area of construction emphasis is just north of Long Beach. Actually not much of this is under way yet. But plans are developing and work will begin soon.

Much of this section is on fill and designers had a problem finding sufficient fill material.

A 155-acre, undeveloped site was bought for the sole purpose of borrowing fill. State engineers expect to get 9 million cu yd of borrow by grading this area as much as 60 ft deep. The area will be graded to carefully prepared plans so it can be sold for industrial use later. Result should be that the borrow will be obtained at no cost.

Hauling the borrow will, of course, cost a significant amount. Bids have ranged from 9 to 12 cents a yard-mile. And some of the Long Beach area borrow will be moved 10 to 15 miles. Effort is being made to minimize hauling costs. In the Long Beach area early contracts will include some 17 bridges so the material can be hauled without using local streets.

Other fill material has been obtained from flood control projects. The highway people have been working closely with the Corps of Engineers to make best use of excavation from flood control channels.

In the Long Beach area some of the early contracts will involve interchanges with other freeways. A 1.3-mile section that crosses the Long Beach Freeway is expected to be bid early next year. This will be followed by an interchange with the nearby Harbor Freeway (ENR March 31, 1955, p. 31). Stage development of that route has extended it to the San Diego Freeway. An interchange with the San Gabriel River Freeway will also be coming along soon.

Further development of the freeway in the Long Beach area will fill in the gaps between the interchanges with other freeways. Then it will be extended in stages north to meet the West Los Angeles construction and south into Orange County.

• **Orange County busy**—Considerable construction effort is now under way at the southern end of Orange County in the vicinity of San Clemente and San Juan Capistrano (where the swallows return every St. Joseph's Day—March 19).

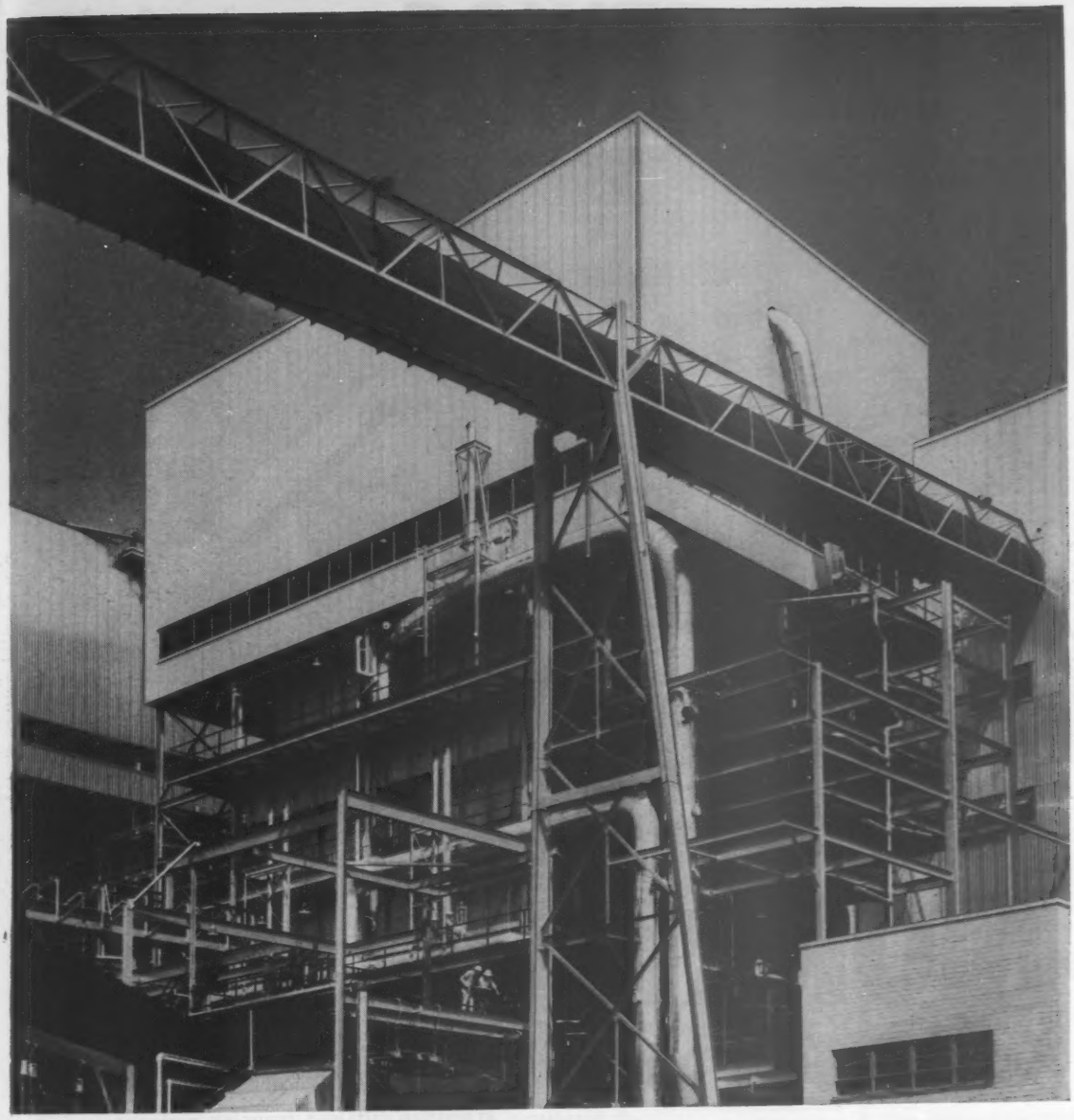
This area is an undeveloped section of the Santa Ana Freeway. This latter freeway proceeds southeast from downtown Los Angeles. Initial construction of the Santa Ana Freeway is complete to the junction with the San Diego Freeway some 10 miles beyond Santa Ana. But none of the San Diego Freeway work is done in this area. Thus the current work will serve the Santa Ana Freeway.

Just completed in San Clemente is a 2.3-mile $2.7 million stretch. And under construction are two contracts totaling $8 million and extending for more than 11 miles. Another seven miles just south of San Juan Capistrano will be under construction in 1959.

• **San Diego County slow**—In San Diego County, not much progress has been made except for freeway sections built under earlier programs.

There are 6½ miles of completed four lane freeway bypassing the City of Oceanside. This section can be expanded to six lanes but probably not to eight lanes. So full planning of the San Diego Freeway in this area is as yet indefinite.

Another 10.4 miles of four-lane freeway was completed in 1958 from the



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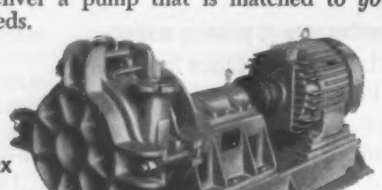

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. . . San Diego Freeway

Mexican border to just south of San Diego. This artery can be expanded to six lanes, but probably not further.

Emphasis in San Diego County will be placed on a 5.7-mile section that bisects San Diego. This will take the freeway to the east of the downtown business section and leave the present U.S. 101 as a major city street.

The 1959-60 budgetary allocations will permit extensive right-of-way purchases in San Diego—very little has been acquired as yet. And a contract for a $13 million section, involving a four-level grade section, will be awarded. This "stack" will be patterned after the more famous four-level structure in Los Angeles.

Some of the other interchanges in the San Diego area will also be complex.

The San Diego Freeway intersects U.S. 80 just north of downtown San Diego. These are the two most heavily traveled highways south of Los Angeles. The interchange is hemmed in by the San Diego River and by a nearby railroad, historical sites and a major city street.

An elevated viaduct may be built to carry the high-speed traffic over the interfering elements. But there is little viaduct construction elsewhere on the San Diego Freeway.

Other sections in San Diego County are at least five years from construction. Most of it is between San Diego and San Clemente, where traffic is presently served by U.S. 101. New alignment will follow the existing highway on about two-thirds of the route.

Vermont Cuts Its First Interstate Road Ribbon

Vermont has opened the first link of it's Interstate Highway System.

It marks completion of a $3.5 million stretch of four-lane highway nearly six miles long. The road runs from Guilford, in the southwest corner of Vermont, to the Massachusetts border.

These six miles are the first of what will eventually be 321 miles of interstate highway in Vermont.

Work is about 80% complete on the second link, a two-mile section from Guilford to Brattleboro. This $2.7 million section is scheduled to open to traffic late next summer.

Five projects on the Interstate System, totaling 12.5 miles, are under construction in Vermont at a cost of $13.4 million. Another six projects involving 19.5 miles have been contracted for or are out for bids, and these projects carry an estimated price tag of $27 million. Eleven more interstate projects, to total 57 miles, are in the design stage. These will cost nearly $63 million.

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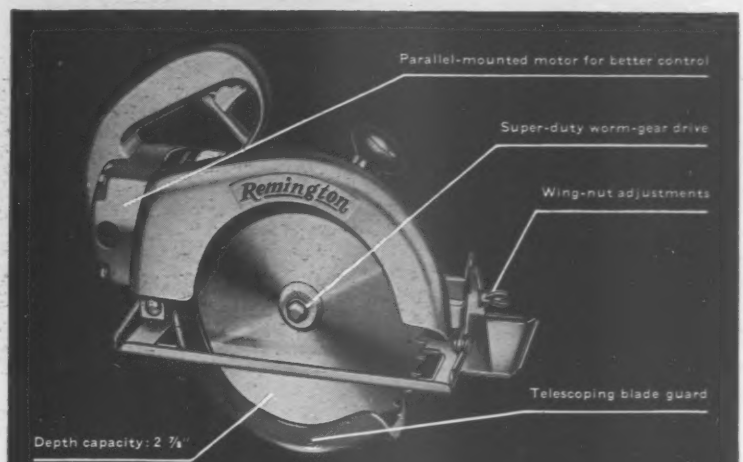
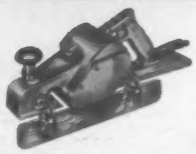


Circular Saw, Model 86—8½" blade cuts up to 2-5 16" at 45°. Powerful 12 amp motor plus worm gear drive develops tremendous torque. 4200 rpm; ball and needle bearings; wt. 18 lbs. Complete with blade, wrench, and carrying case. UL approved. Price: $148.00*

Power Trowel, Model TG4-26—2½-hp, 4-cycle, gasoline-powered engine; 26" ring size; automatic recoil starter; centrifugal clutch disengages at idle. Price $340.00.

Electric Drill, Model 125—½" capacity; 7-amp motor, most powerful in its class; 500 rpm; rugged construction yet light weight: 8½ lbs. Price $73.00*



Plane, Model 3P—Extra-heavy-duty, 3" combination door and surface plane—converts by removing fence; superb balance; 8.4-amp motor. Price: $170.00*

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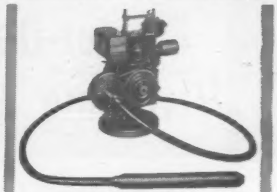
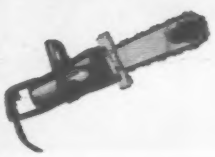


Concrete Vibrator 10GVR has 5-hp, air-cooled, variable-speed gas engine—up to 3,200 rpm. Economical. Up to 10,000 v.p.m. Price from $414.00.



Electric Chain Saw, Model 11E12D—12-amp universal motor; hardened steel bevel gears; 12" bar with Roller Bearing nose; Wt.: 18 lbs. Price $120.00*

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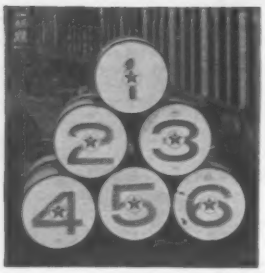
SECOND LARGEST DAM IN THE U. S., at Glen Canyon, Ariz., will incorporate two of these 2,800 ft. diversion tunnels. Frazier-Davis equipment runs dependably, stays on the job, thanks to the Texaco Simplified Lubrication Plan.

Glen Canyon tunnel borings nearing completion with Texaco Plan



Only 6 lubes needed to keep Frazier-Davis equipment working dependably

This is Frazier-Davis Construction Company's job: to bore the east side diversion and service tunnels, with a combined length of 2½ miles, through the walls of Arizona's Glen Canyon. It's a vital project, part of the Bureau of Reclamation's $760 million development of 10,000 square miles of arid land. On a job as big as the Glen Canyon Dam, on-time completion of every phase is absolutely essential. And that puts a priority on dependable equipment performance.

The Texaco Plan keeps equipment on the job—at lowest cost—by handling all major lubricating problems with no more than six products. A combination of specialized and multi-purpose lubricants assures proper lubrication for each machine, with lower lubricant inventory and less chance for mistakes. For Frazier-Davis, the Texaco Simplified Lubrication Plan has proved to be one of the most economical and dependable ways to get top performance from every piece of equipment.

Here are the lubricants Texaco recommended for Frazier-Davis:

Texaco Ursa Oil Heavy Duty—keeps engines clean, rings free, valves properly seated for full power.

Texaco Regal Oil R&O—prevents formation of rust and harmful deposits in compressor systems.

Texaco Universal Gear Lubricant EP—keeps differentials and transmissions running smoothly at low cost.

Bureau of Reclamation photos

Texaco Marfak Multi-Purpose 2—protects wheel bearings, chassis, water pumps against dust, moisture and wear.

Texaco Track Roll Lubricant—prolongs the life of crawler mechanisms.

Texaco Rock Drill Lubricant—guards against wear and rust whether drills are running or idle.

Ask a Texaco Lubrication Engineer to help you simplify your lubrication problems and reduce costs. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

Cantilevered slabs and identical forms for all five floors kept interior simple.

Building Quality Into an Econom

Two outstanding design features have held down costs on a high-quality dormitory building in Omaha, Neb. Cost saving features are:

- Cantilevered floor slabs set on just two rows of columns.
- Prefabricated cabinet walls used to form the individual rooms.

The job was a new student-nurse dormitory at St. Catherine's Hospital. It's a five-story, reinforced concrete building—36 x 167 ft—designed to house 104 nurses.

The job cost $17 per sq ft on 30,555 sq ft of area. That cost figure includes individually controlled air-conditioning units for each room and a high grade of material and finish throughout. The owners and designers consider the cost very low for this type of construction.

• Uncluttered building frame—Two lines of columns are placed 24 ft apart and 6 ft in from each side of the building. The floor slabs cantilever from these columns out to the building edge. Shallow, wide concrete beams, or slab bands, extend along the column lines.

The slabs are 10 in. thick at these supports and taper to 7 in. at the outside of the building and to 5 in. at the center between column lines.

The result is an uncluttered interior extending the full length of the building.

Floor layout is simplified—particularly the lower floor, which is used for an auditorium and library. Folding partition doors at this level may be opened to provide an unobstructed view of the stage at one end of the floor.

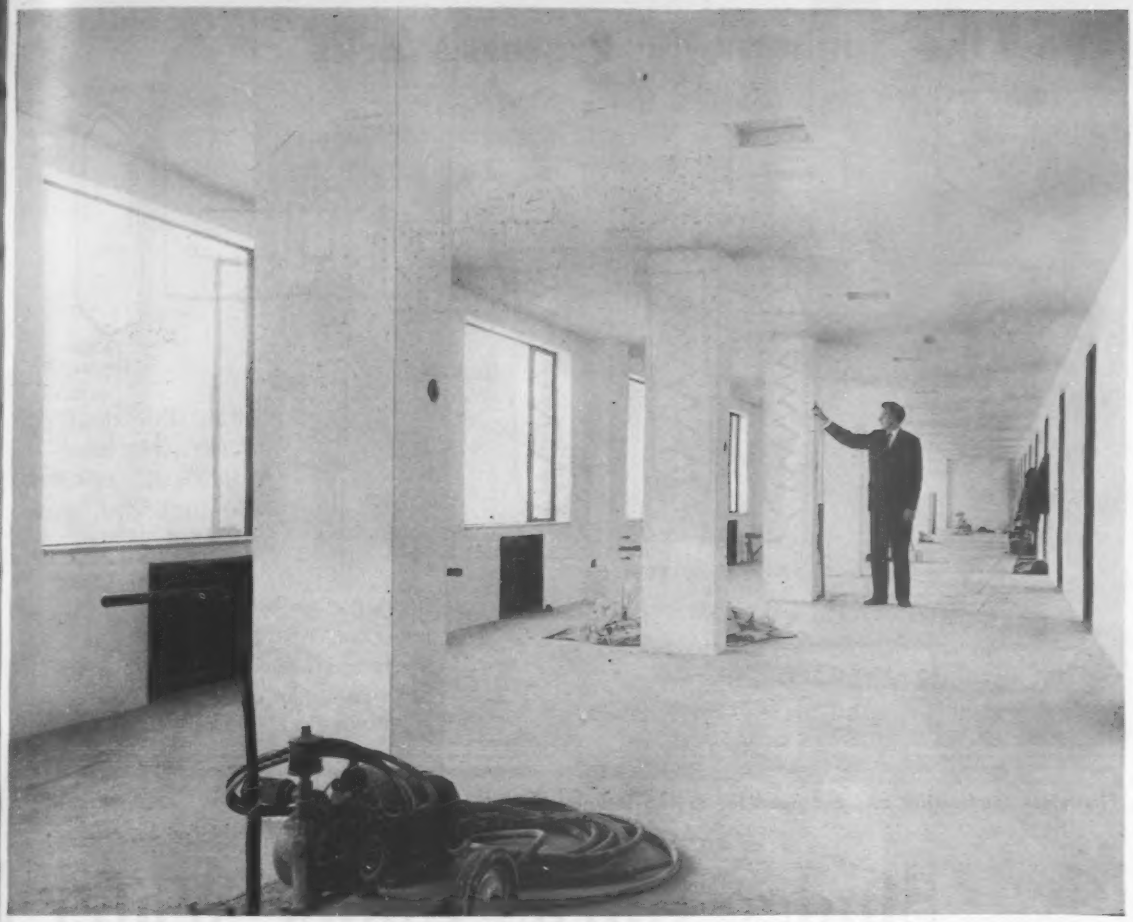
There are no cross beams in the slab-band design to reduce ceiling height or limit room planning. Maintaining the same form sizes in both slabs and columns on all five floors and on the roof also helped to reduce construction costs and speed up the job.

• Double-duty dividers—The dormitory floors are divided into double rooms on either side of a central corridor. Two cabinet units form the cross wall of each room between the exterior walls and the walls of the central corridor. Joined together, they are placed against one side of each column.

The column on one side of the partition separates the two beds. It is complete with built-in reading lights.

On the other side of the partition in the next room, the cabinets are uninterrupted from end to end. They provide a desk, a vanity chest and a chest of drawers for each girl. The partition also holds a stainless steel wash basin and a mirror. Separate storage cabinet units are built on top.

The units are tailored for the job. Each one is 7 ft wide and 6 ft, 4 in. high. That's big enough for a complete partition but small enough to be hoisted through the windows for installation.



Interior finishing was done on large scale before erecting room partitions and saved time and money.

ormitory

The storage units, 1 ft, 8 in. high, can be adjusted for any ceiling irregularity when they are set in place on top of the other units.

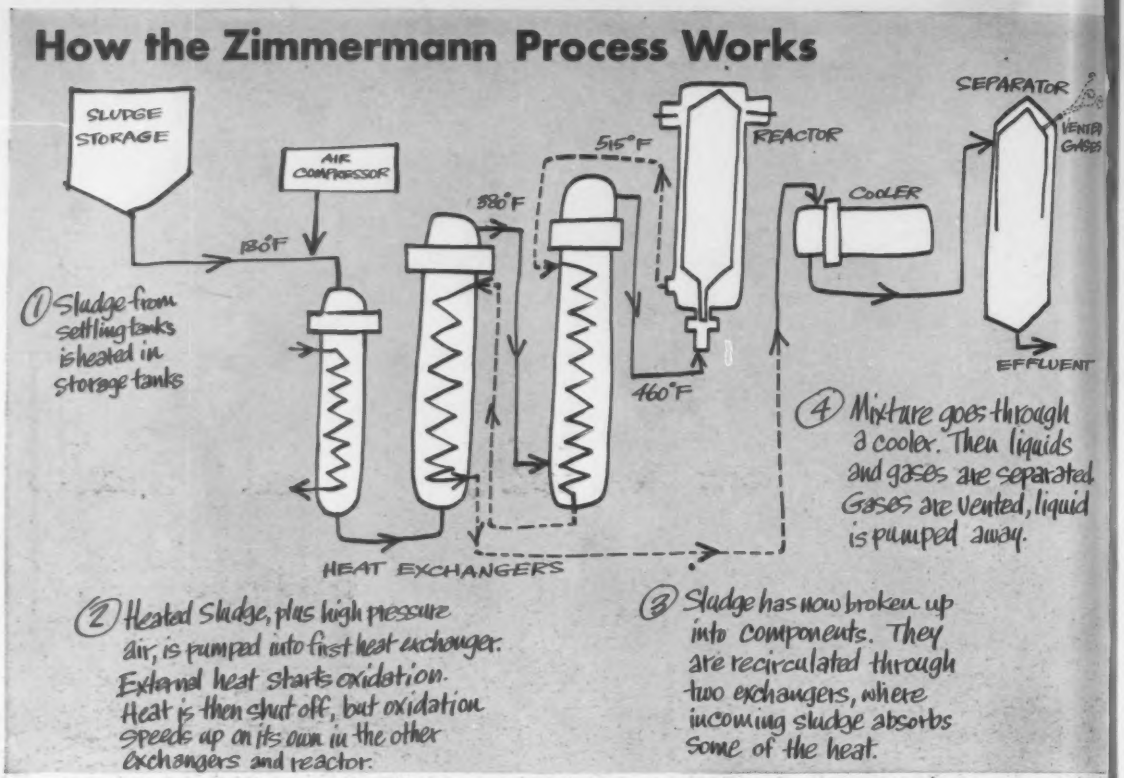
The architects chose this partitioning for these reasons: The cabinet walls make an effective sound buffer (reportedly giving a 40 decibel sound reduction); and their mill fabrication allows better construction and finish with assembly-line savings.

The exterior walls, interior corridor walls and all utilities were installed before the individual rooms were partitioned off. This method allowed machine-plastering.

Layout was further simplified by concentrating elevators, stairwell, baths and utility risers at one end of the dormitory, adjoining another building.

Architect-engineer for the St. Catherine's job is the Leo A. Daly Co., Omaha. Parsons Construction Co. also of Omaha, is the general contractor.

CABINET PARTITIONS went in last to form individual rooms. Factory assembly gave quality control plus mass production savings.


How the Zimmermann Process Works
SLUDGE STORAGE
AIR COMPRESSOR
130°F
530°F
515°F
REACTOR
SEPARATOR
VENTED GASES
COOLER
EFFLUENT
460°F
HEAT EXCHANGERS
1 Sludge from settling tanks is heated in storage tanks
2 Heated sludge, plus high pressure air, is pumped into first heat exchanger. External heat starts oxidation. Heat is then shut off, but oxidation speeds up on its own in the other exchangers and reactor.
3 Sludge has now broken up into components. They are recirculated through two exchangers, where incoming sludge absorbs some of the heat.
4 Mixture goes through a cooler. Then liquids and gases are separated. Gases are vented, liquid is pumped away.

Flameless combustion cuts out need for drying sewage solids . . .

Sludge Burns Under Water i

Most of the results are in and conclusions should soon be forthcoming on a year-long pilot study in Chicago that may revolutionize sludge disposal in sewage treatment plants.

Called the Zimmermann Process after its inventor, the operation is based on a radically new method of combustion. It literally burns up solids in treated sewage by flameless combustion under considerable pressure and heat. All it leaves is a residue of fine, inert ash and water.

Indications are the process may save Chicago a lot of money.

• **Continuous operation**—Basically, the process is a continuous operation under pressure that oxidizes with air organic matter dissolved or suspended in water.

Where incineration is required, proponents say the process can achieve the same degree of combustion with water present as does the usual method—evaporation of the water and then incineration of the dried residue. The end products in either case are steam, nitrogen, carbon dioxide and ash. Moreover, the Zimmermann Process eliminates conventional filters, chemicals, sludge digestion units and incinerators.

Incineration is required at many large inland sewage plants, which are unable to barge or pipe their sludge to the sea.

Under a pressure of about 1,200 psi, solids in the sewage sludge will ignite with a flameless combustion at temperatures as low as 300F. They will continue to burn at 400 F to 650 F as long as oxygen and water are present and the system is under pressure. The heat of combustion stays in the water, producing steam to operate the process. Excess is siphoned off as process steam or fed to a turbine or piston engine.

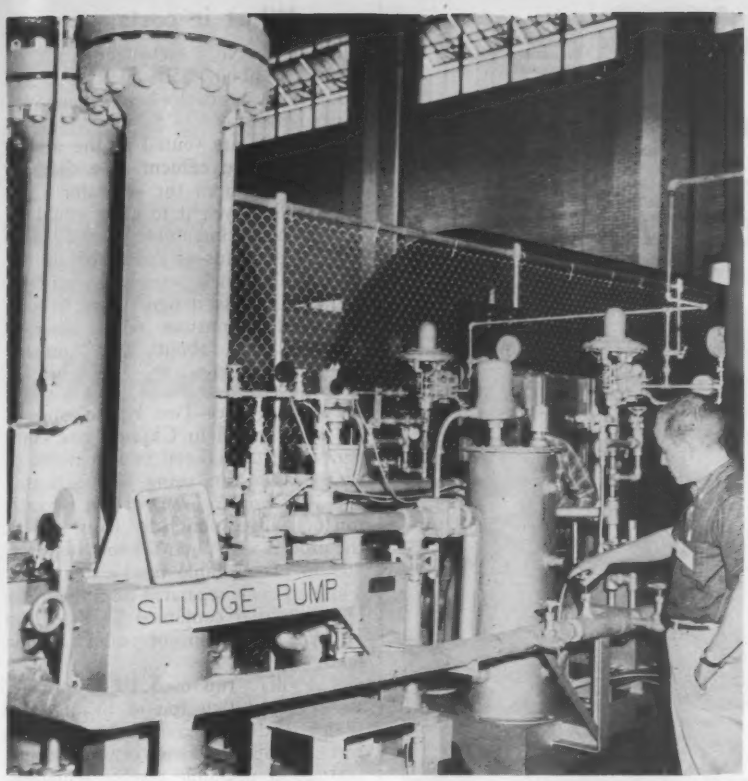
• **Joint study**—The pilot model study is a joint undertaking of Sterling Drug, Inc., New York City—developers of the process—and the Metropolitan Sanitary District of Greater Chicago. Credited with inventing the process is F. J. Zimmermann, president of Salvo Chemical Corp., Rothschild, Wis., a subsidiary of Sterling Drug.

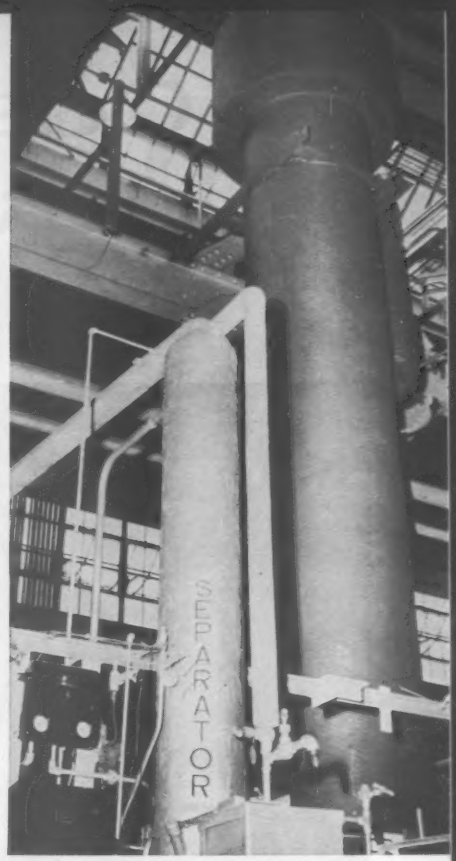
The pilot plant is installed in the Chicago Sanitary District's Southwest Treatment Works in one of the buildings housing a battery of big vacuum sludge driers. It has a daily sludge disposal capacity of 2 tons. This is the equivalent of the daily sewage sludge from a primary treatment plant serving a city of 20,000.

Under the joint agreement, Sterling Drug built, equipped and operated the pilot plant. The Sanitary District's part of the bargain was to provide the necessary facilities to deliver sewage sludge used in the experiment. This included both primary sludge and activated sludge individually as well as mixtures of the two.

• **More capacity needed**—The Chicago Sanitary District is interested in the Zimmermann Process because Chicago must provide facilities for disposing of an additional 200 tons per day of sewage sludge.

The 900-sq-mi metropolitan area feeds about 1,200 million gal of sewage a day (mgd) into the Sanitary District plants for treatment. From 800 to 900 mgd flows to the Southwest Works, carrying from 600 to 650 tons of solids. Another 100 tons of solids are pumped





Biggest component is 20 ft reactor

New Incinerator

daily to the Southwest plant from the North Side Works.

This adds up to 700 to 750 tons of solids to be disposed of daily at the Southwest Works. Present facilities, however, according to William A. Dundas, general superintendent, can handle adequately only 450 to 500 tons per day. This leaves 200 to 250 tons for disposal by other means.

• **Economic advantage**—Although the Sanitary District has made no official move yet to install large-scale Zimmermann units, economic studies to date has been quite favorable.

Zimmermann Process equipment to handle 200 tons of sludge per day—probably four 50-ton-per-day units—would cost about $6 million installed. By comparison, estimates of the cost of increasing present facilities at the Southwest Works to dispose of an additional 200 tons per day are $25 million.

Fabrication of the component parts needed and installation of the complete process equipment could be accomplished in 12 to 15 months, according to estimates.

• **Pilot plant components**—The pilot plant received its first sludge for treatment in September, 1957. Since then there have been 19 runs varying from 26 to 361 hours.

The largest single piece of equipment used in the process is the reactor. It is 2 ft in diameter inside and 20 ft high. It is made of 1¼-in. welded steel plate lined with ⅜-in.-thick stainless steel sheet.

Other major components include a compressor with 150 cfm capacity at 1,200 psi pressure; an air receiver; high-pressure sludge pump; two calibrated 2,000 gal sludge storage tanks with heaters and agitators; three stainless steel heat exchangers; and a reactor, separator and cooler—all lined with stainless steel. Additional equipment was installed to control, measure and record flow, temperature and pressure.

• **How it works**—Sludge is thickened to the proper consistency by ordinary settling in a settling tank and ground to ¼ in. maximum size. Then it's pumped to two storage tanks and heated to 180 F (see sketch).

Flowing at a rate of 20 to 240 gal per hr, it passes through a rotary feed pump into a high pressure pump, which puts it under the required pressure.

Air from the compressor is introduced at 1,200 psi pressure and both sludge and air pass through the No. 1 heat exchanger. Steam is applied here but only during the startup period.

As the mixture passes through the No. 2 heat exchanger its temperature goes up to 380F and in the No. 3 heat exchanger to 460 F. The heat exchangers are designed to handle the sludge at a rate of 4 gpm.

Then the air-and-sludge mixture enters the bottom of the reactor and is oxidized as it passes upward. It follows a coarsely baffled path through the central body of the reactor. The resultant gases and water spill through a vent at the top of the inner shell into a space between that shell and the outside walls of the reactor.

At this point, the oxidation of the sludge is completed. Then the steam, nitrogen, carbon dioxide, water and other products—at a temperature of about 515 F—pass through the bottom of the reactor into the No. 3 and No. 2 heat exchangers.

The temperature of the oxidized material is reduced to about 500 F in the No. 3 heat exchanger and to about

Costs go down

as fast as the pipe!

Lancaster, Pennsylvania: Ten miles of 42-inch ID steel main are an important addition to the local water supply system. The 100 per cent Dresser-Coupled line was laid by Frank Kukurin & Sons and Alconn Utilities.

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. . . What it costs

440 F in the No. 2 exchanger. It is then cooled to about 150 F as it passes through a water cooler before going into a separator.

The gases are vented to the atmosphere and the effluent is withdrawn continuously from the separator. The ash—equal in weight to what would result from incineration of the same volume of solids—is contained in the effluent. When lagooned or used as a fill, the process designers say, it will not create obnoxious odors, since it contains only about 10% organic matter.

• **Two test runs**—Two typical runs of the pilot model in Chicago give comparative data between two mixtures of sludge. One run, using 50% activated and 50% primary, showed that for each ton of sludge solids (dry basis) fed to the process with about 23 tons of water, 703 lb of insoluble residue remained. This was easily separated from the water by settling; it contained 75 lb of the original 1,372 lb of solid organic matter.

The other run used 100% primary sludge. For each ton of this type of sludge solids (dry basis) fed to the mixture with about 20 tons of water, about 600 lb. of insoluble residue remained. It contained only 58 lb of the original 1,458 lb of solid organic matter.

Estimated costs of installing a Zimmermann Process plant capable of oxidizing 100 tons of sewage sludge per day, according to engineers of Sterling Drug, Inc., is $2.6 million (see table).

Estimated Costs for a Zimmermann Process Plant

(100-ton-per-day plant)

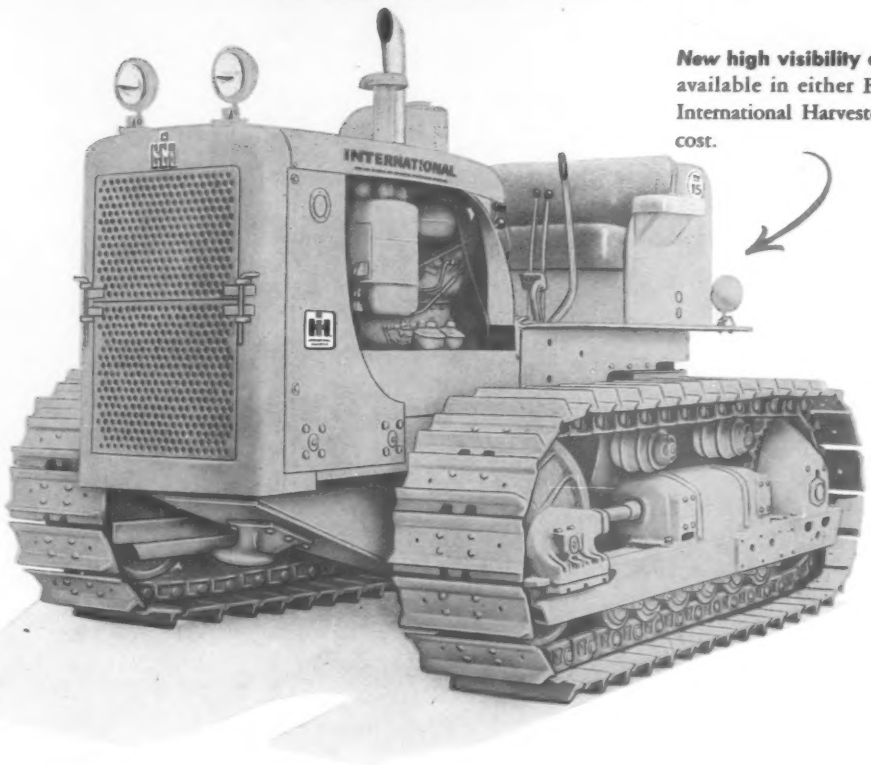
Reactor	$220,000
Heat exchangers	240,000
Air compressor and motor	280,000
Expansion engine and reduction gear	290,000
High-pressure sludge pump	80.000
Sludge storage tanks with heater	30,000
Air receiver	9,500
Separators	3,500
Building (140x70 ft)	100,000
Installation, engineering, construction, piping and instrumentation	1,347,000
Total	$2,600,000

Operating costs are estimated at $120,000 per year. These estimates are based on experiences and studies of the 2-ton-per-day pilot plant during the past several months, and the prevailing labor rates in Chicago.

Horace P. Ramey is chief engineer of the metropolitan Sanitary District of Greater Chicago, and E. Hurwitz is director of laboratories.

NEW International® TD-15 tops 100-hp field...

with exclusive power and control features!



***New* high visibility color.** Optionally available in either Federal yellow or International Harvester red at no extra cost.

NEW

6-cylinder diesel power . . . 105-hp fully-proven D-554 engine—full 20,500 lbs drawbar pull.

NEW

6-speed full-reverse transmission...20% higher reverse speeds. A speed for every work or travel need plus fast "Shuttle-Bar" direction changing!

NEW

Precision control

Foot Decelerator for instant speed changes —fast "Shuttle-Bar" forward-reverse travel.

NEW

1,000-hour lube interval, heavy-duty track rollers

. . . heavy-duty, long-life bushing type, with extra capacity lube reservoir.

...and here's the pay-off for you...

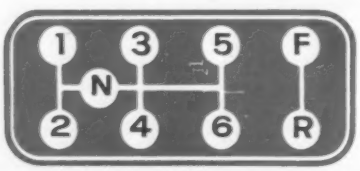
You move in on...and speed up

....with NEW TD-15

For "easing up" on power and speed without letting go of steering levers or other controls, simply use the optional "no hands" Foot Decelerator!

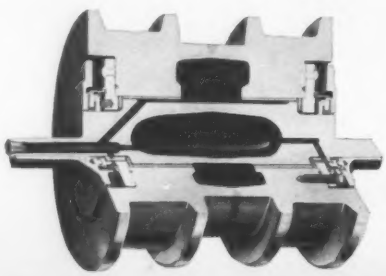
Exclusive six-speed "single stick" shift... forward and reverse "Shuttle-Bar"

You shift through all six speed ranges of the new TD-15—forward or reverse—with a single lever. Shift pattern is planned for gear-changing ease and speed with a fast sweep of the hand—to give you instant use of the speed you need. To speed the work-cycle and take full advantage of fast shifting, you simply push or pull the "Shuttle-Bar"—to change TD-15 forward or reverse instantly.



1,000-hour lube interval, heavy-duty, track rollers

Not just another "claim" . . . International now combines heavy-duty *bushing design*, exclusive cartridge-type *metal-to-metal seals*, and king-size lube reservoirs, to offer the industry the first heavy-duty type roller as standard equipment on the TD-15. Thick shells for safe build-up and exclusive pressure relief passages for flush-out and prevention of seal damage from power lubricators are part of this new design.



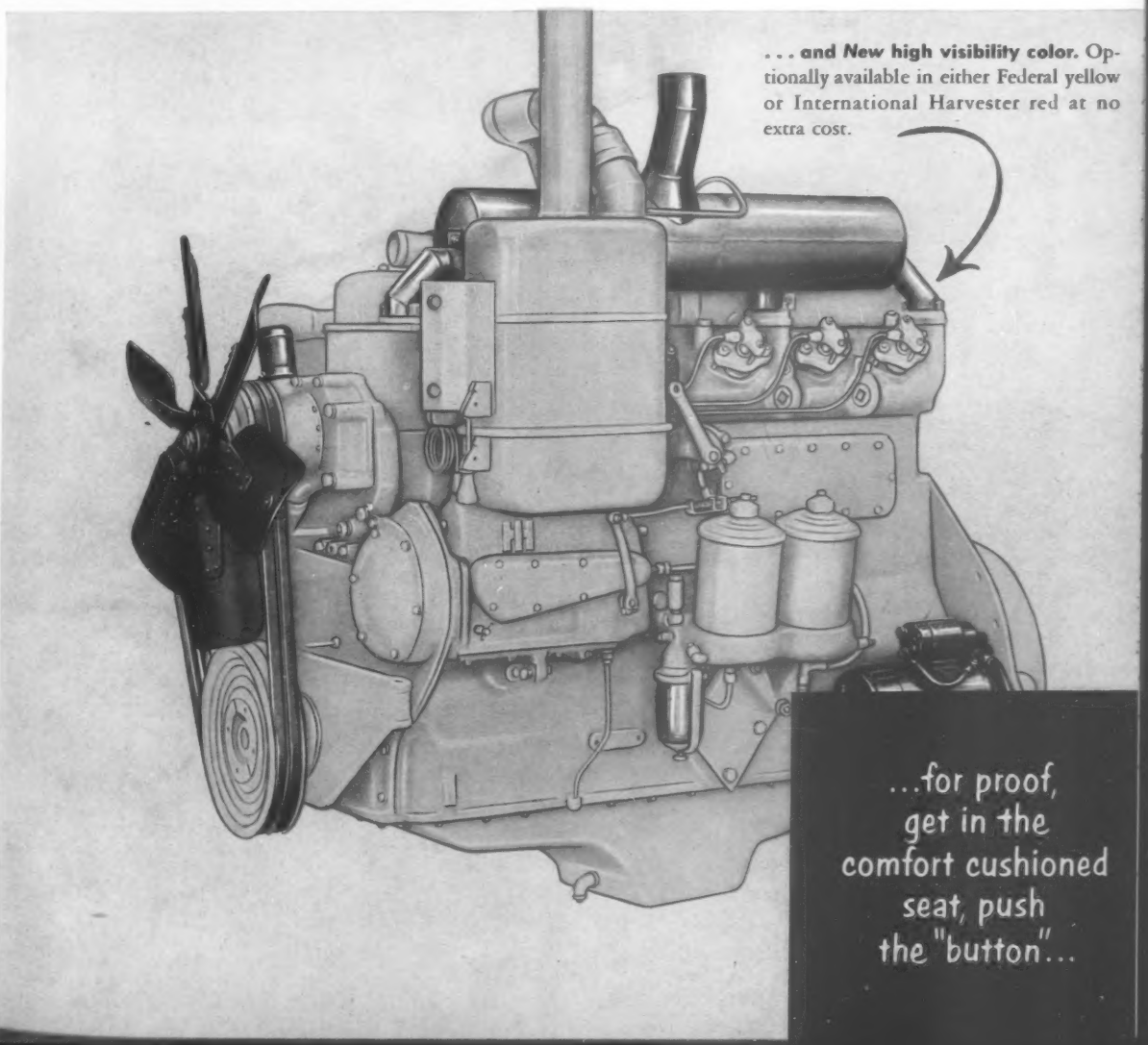
...a whole new range of jobs...

capacity and control

Smooth 6-cylinder... BIG 105 IH diesel horsepower

You get 6-cylinder smoothness from this new International D-554 diesel engine that powers the new TD-15. This fully-proven power plant produces its 105 net hp at 1,650 rpm . . . features famous International 45-degree angle operation full-flow lubrication, closed pressurized cooling, exclusive twin plunger pump fuel injection system, fully counter-balanced crankshaft, positive valve rotators, and all-weather gasoline conversion starting. Here's an engine built for long life, big-capacity output!

New power, strength, control, and reliability features like these show you how and why the 105-hp TD-15 tops its field. You move in on a new range of heavy jobs—material-moving, land-clearing, hauling, loading, excavating, logging, mining—that no longer belongs to next-size-bigger crawlers!



. . . **and *New* high visibility color.** Optionally available in either Federal yellow or International Harvester red at no extra cost.

...for proof, get in the comfort cushioned seat, push the "button"...

Compare TD-15 performance to anything *in the 100 hp crawler field!*

Prove to yourself you can move in on, and speed up, a whole new range of heavy jobs—with new TD-15 capacity and control. Put the TD-15 through its paces—compare *power*, *speed*, *capacity*, and *control* to anything else on tracks in the 100 hp field. The 6-speed full-reverse transmission and "Shuttle-Bar" will show you on-the-job how fast, easy, and profitable shuttle-cycle operations can be! Press the decelerator and see what a helper this feature can be for actually speeding up operations—by reducing declutching and shifting time! Measure sintered metal, dry-type clutch full power transfer efficiency and maintenance, ease and economy to any other crawler's clutch—wet or dry! See your International Construction Equipment Distributor for a new TD-15 demonstration!

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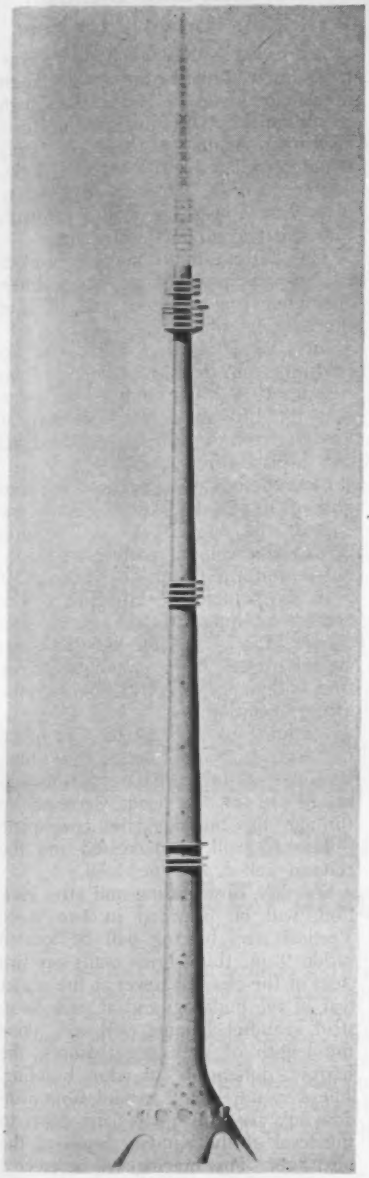


World's Tallest Structure Under Way in Moscow

Construction has begun in Moscow on what will be the world's tallest structure—a 1,667-ft TV and observation tower. The reinforced concrete tower will be 57 ft taller than the Roswell, N. M., TV tower, which is now the tallest structure in the world, and 195 ft taller than New York City's Empire State Building.

The circular tower, 23 ft across at the top and 213 ft at the base, will have walls a constant 9.8 in. thick. Russian engineers estimate the tower and its foundations will require about 7,850 cu yd of concrete.

Four elevators, with a capacity of 14 persons, will travel to observation decks at the top in 80 seconds. Between the 1,300- and 1,500-ft levels there will be several observation decks and a 240-seat restaurant.

The Moscow tower will have TV studios and transmitters in a nine-story office building at its base. Its 50-kw transmitters will serve an area extending 75 miles from the tower.

The Soviet designers say bracing cables inside the structure will lead to a central stress point at the tower base. The upper ends will be attached at four levels at and between the 850- to 1,300-ft points. Construction is expected to take one year.

The tower was designed by D. I. Burdin and I. V. Nikitin, members of the USSR Academy of Construction & Architecture, and architect L. I. Batalov.

Land Reclamation

Zuiderzee nets 20,000 acres for Holland in 1958

Holland's once huge Zuiderzee will soon become fertile farmland. It will be drained dry under the country's third large land reclamation project in the bay.

Crops have already been harvested from some 5,000 acres and 500 acres of sandy soil have been forested. Approximately 20,000 acres of land will be reclaimed this year from the 133,600 acre Eastern Flevoland section.

Twenty miles of massive dikes were built between 1924 and 1932 to shut off a major part of the Zuiderzee from the North Sea. Then smaller sections within the Zuiderzee were diked and drained to reclaim land for agricultural purposes (ENR, Dec. 1, 1932, p. 639).

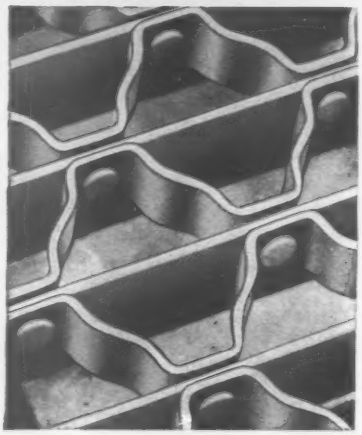
By properly controlling sluice gates in the dike, saline sea water has been prevented from entering the lake. Sweet river water feeding into the lake is permitted to flow into the North Sea. Each year some of the salinity is washed out of the lake area. Eventually all the salinity will be removed.

Diking of the fourth tract, the Markerwaard, for 133,600 acres will be completed by 1968. A fifth project is planned to reclaim 111,150 acres from the Western Flevoland by about 1977.

Already reclaimed and under cultivation are 49,500 acres of Wieringermeer land and 118,600 acres of the Northeast tract.

(*International continued* 52)

New "CK" BRIDGE DECKING ENDS WEAVING OF CARS



Modification of the original Irving Type V Decking has eliminated "weaving" on open mesh steel floors. The improvement is effected by a 3/16" elevation difference of the crimped bars over the straight bars.

"CK" Decking, successfully field-tested for 4 years, has the same advantages of safety, strength, durability and self-maintenance as standard Type V Decking

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Ask your contractor to make sure it is watertight by using THOROSEAL to seal the surface. THOROSEAL is available in many attractive colors.

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Sydney Lift-Slab Building Will Top Out at 210 Feet

Work has started in Sydney, Australia, on what will be the world's tallest lift-slab building. It is a 210 ft. high $5 million office building for the Royal Exchange Assurance. The 21 story structure will have 17 lift-slab decks. The roof will be 186 ft above a cast-in-place base consisting of the substructure and two ground-level floors.

The bottom floors are cast-in-place concrete because of a two story differential between the front and back of the building site.

Lift-slab concreting will start in December and lifting is scheduled for March, 1959. The builders estimate that the lift-slab system will save at least eight months over conventional cast-in-place construction.

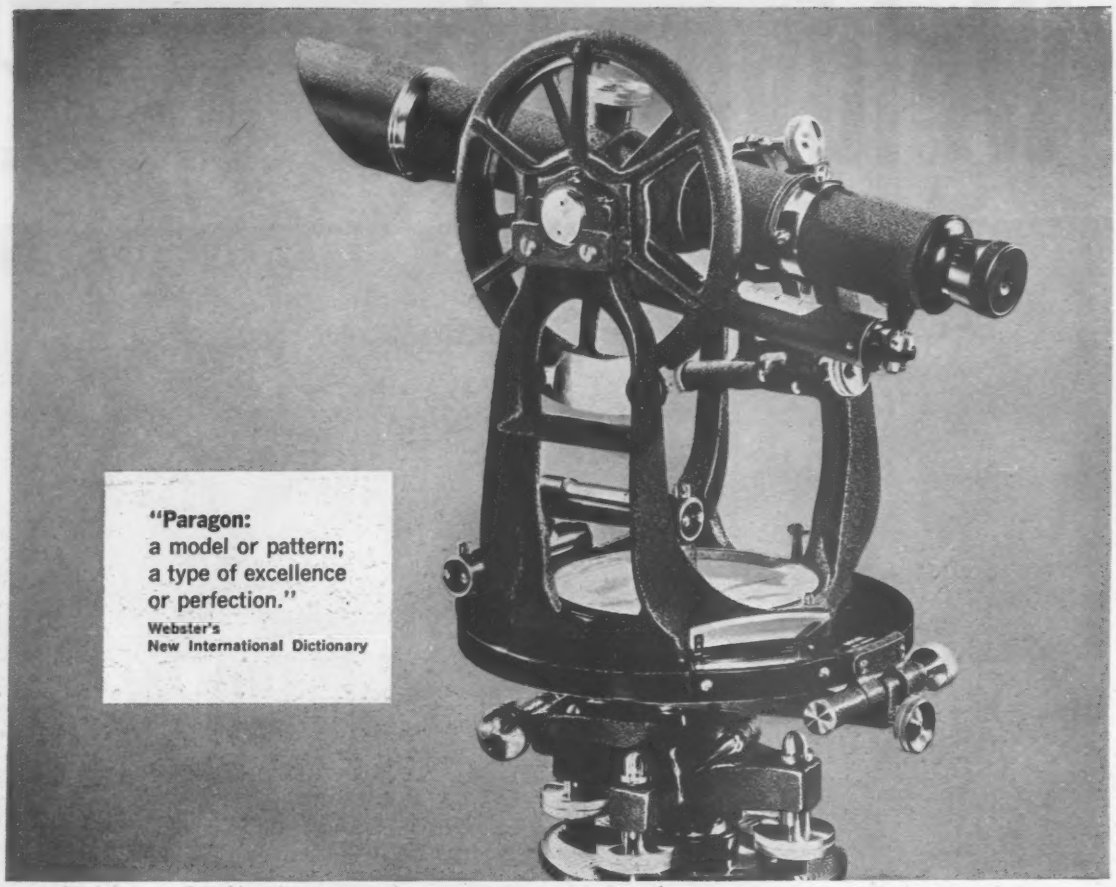
Floor design is based on a column grid of 18 x 20 ft. A dog leg at one end of the 63 x 223 ft site requires varying this column pattern in places, but a uniform floor slab thickness of 8 in. is maintained throughout. The exterior columns along the side lot lines are set back 21 in. and the slab edges are set back 2 in. to provide clearance from adjacent buildings during the lifting operation.

Column size is kept to a standard in the design, too. From top to bottom, I-beam sections with cover plates will be 14 x 12 in. As loads decrease up through the building, the cover-plate thicknesses will be decreased and the column web depths increased.

Stability, both during and after erection, will be provided in two ways: Vertical steel bracing will be located inside 9 in. thick brick walls on two sides of the elevator tower at the center rear of the building; and at each floor, steel spandrel bracing will run along the length of both street fronts, the narrow dimension of the building. These spandrels will extend from window sills past the floor slabs down to the level of the window heads of the next floor. This bracing will be erected two floors below the lifting level as the building rises.

When lift-slab casting starts, about 170 cu yd of concrete will be placed each day for seven weeks. After casting and curing, a total floor-area of 200,000 sq ft will be lifted and secured in place in eight weeks.

Architects for the project are Kenneth McConnel, Smith & Johnson of Edgecliff. Structural design is by Woolacott, Hale & Bond, consulting structural engineers, North Sydney. James Wallace & Co. Pty. Ltd. is the builder. Lift-Slab of Australia Pty. Ltd. is the subcontractor for the lifting operation.



In Transits too, K&E Paragon sets the pattern of perfection

The superior optical qualities and precision operation which K&E builds into the Paragon Transit® are designed to last a lifetime and offer the maximum in performance and ease of use. Compare the Paragon with other transits, feature by feature. Only the K&E Paragon Transit has all five of these important advantages:

1. A Completely Enclosed Achromatic Telescope . . . with an achromatic eyepiece *as well as* an achromatic objective lens. It sights clearly and sharply, with less eye strain. Enclosed telescope is fully sealed, stays free from dust and moisture.

2. Chrome Plated Draw Tube . . . with one of the hardest bearing surfaces known to man. Tube cannot wear as it moves back and forth on bearing rings, so line of sight remains stable.

3. Stainless Steel Axle Journals . . . for the best possible bearing surface. Ease of operation is retained no matter how many times you change the telescope from the direct to the reverse position.

4. One-Piece Spanned Vernier Disc . . . to make sure that the verniers always stay exactly 180 degrees apart. Even under the roughest, most demanding field conditions, angle readings of the Paragon Transit will stay true.

5. Chrome Plated Center . . . combines the toughness of non-brittle forged Everdur with the hardness of chrome.

Naturally, because the K&E Paragon Transit is the best, it costs a little more than ordinary transits. But see for yourself how much more it has to offer. A call to your K&E representative will quickly arrange for a demonstration. Fill out and send in the coupon below.

1612

KEUFFEL & ESSER CO. Dept. EN-11 Hoboken, N. J.

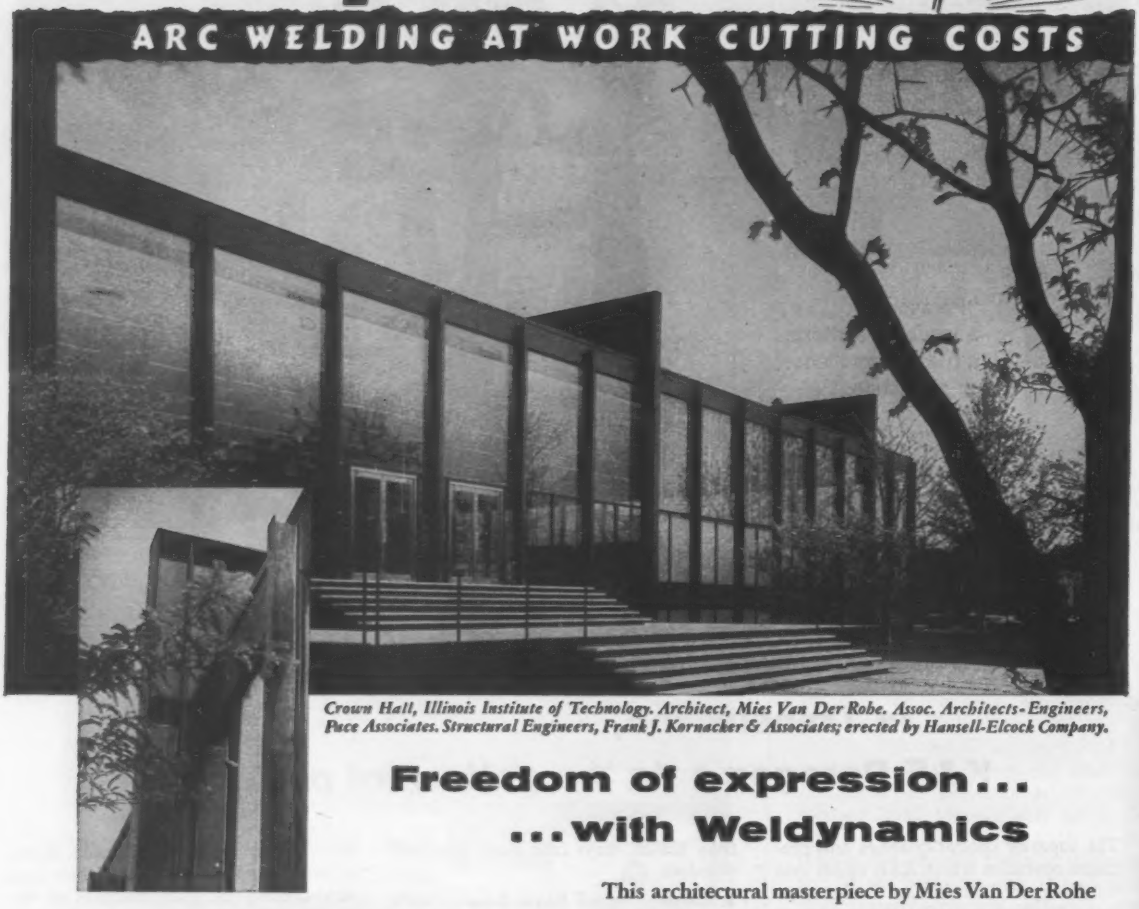
Gentlemen: ☐ Please have a K&E representative show me the K&E Paragon Transit.
☐ Please send me more information about the K&E Paragon Transit.

Name & Title _____

Company & Address _____

Weldynamics

ARC WELDING AT WORK CUTTING COSTS



Crown Hall, Illinois Institute of Technology. Architect, Mies Van Der Rohe. Assoc. Architects-Engineers, Pace Associates. Structural Engineers, Frank J. Kornacker & Associates; erected by Hansell-Elcock Company.

Freedom of expression...
...with Weldynamics

This architectural masterpiece by Mies Van Der Rohe has been described as the summation of a century of steel and glass building. The building is actually a huge room unencumbered by columns, suspended within an exposed steel framework. Such structural clarity is possible only with welded design. In addition to design versatility, welded structures cost less because welded design requires less steel.

Apply Weldynamics to your designs

Lincoln engineers, trained in Weldynamics, will consult with you on design, equipment and procedures. No charge, of course.

"Procedure Handbook of Arc Welding Design and Practice" has 1300 pages, 1100 illustrations, 466 pages on structural design. $3.00 postpaid in U.S.A., $3.50 elsewhere.

"Studies in Structural Arc Welding" published periodically. Free to architects and engineers on request.

The World's Largest Manufacturer of Arc Welding Equipment

LINCOLN

© 1958 The Lincoln Electric Company

THE LINCOLN ELECTRIC COMPANY, DEPT. 3448, CLEVELAND 17, OHIO

This is not an equipment lineup. It's just one machine . . .

The World's Largest Earthmover

The 100-ft-long monster pictured above needs no help from the small boy pushing its huge front tire.

The world's largest earthmover has two 600-hp diesels under its hood driving big ac and dc generators. These in turn power the dc motors geared to the eight wheel rims and the ac motors that handle all operations except motive power.

The rig is R. G. LeTourneau's newest contribution to the heavy equipment field. Its 130-ton (95 to 100 cu yd) capacity takes the top-dog title away from the 50-60 yd scraper introduced about two months ago by the same manufacturer (ENR Sept. 25, p. 70).

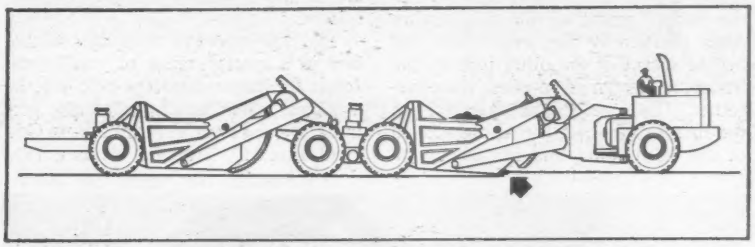
Eight "electric wheels" give the new rig a forward or reverse speed of 16 mph with a full load. A console that can be operated by the fingers of one hand gives the operator full control.

In scraping, the front bucket is loaded first. The tractor and front bowl wheels pull while the empty rear bowl, with its powered wheels, serves as a pusher.

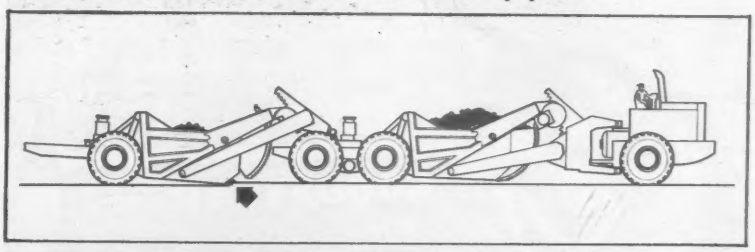
During loading of the rear bowl, the extra weight in the front bucket gives added traction.

Spreading is a versatile operation. Both bowls can be emptied at the same time, placing layers of either equal or varying thickness, or they can be emptied in sequence. Price reportedly will exceed $200,000. R. G. LeTourneau, Inc., Longview, Texas.

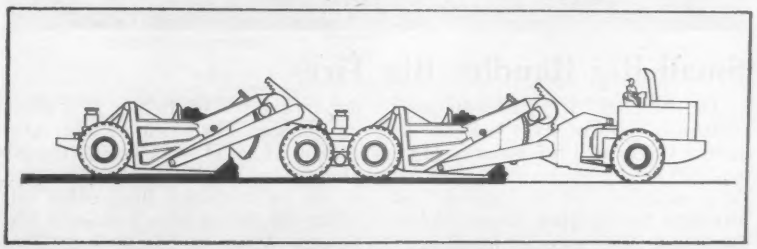
(*New Products continued page 56*)



1. Front bowl loads, rear bowl wheels help push.



2. Rear bowl loads while weighted front end pulls.



3. Both bowls can spread simultaneously if desired.

Slip Joint Cast in Clay Pipe

The Tex-Vit is a rubber and polyester joint, designed to provide a rootproof, permanently-tight clay-pipe coupling for sewage and waste drainage lines, according to the manufacturer. The joint is cast onto the pipe at the factory and shipped as an integral part of the product.

It is basically a simplified push-together design. A lubricant is applied to the rubber gasket of the spigot end. After positioning the spigot into the bell or socket of the other pipe in the trench, a workman pushes them together. The wedge-shaped gasket on the spigot slides over the ribbed section of the bell casting, and into the cylindrical recessed area. This results in a tight, flexible joint. The polyester casting in the bell strengthens it against breakage.

The product can be installed during wet weather and even with water in the trench.

The manufacturer recommends use of the new joint for all types of domestic and industrial waste and sewage disposal systems.

The new joint will be made available first in a limited range of small sizes. Joints for larger diameter pipe will be available when full production gets under way. Texas Vitrified Pipe Co., P. O. Box 117, Mineral Wells, Tex.

Small Rig Handles Big Tires

The "Bimbo" is a truck-mounted, hydraulic, one-man crane that can lift from 1,100 lb on a full boom of 11½ ft to 2,200 lb on a shortened boom of 6 ft. It is recommended for pipeline construction, tire handling, engine replacement and other materials handling.

The crane swings in a 200 of 360 deg arc and will lift to over 18 ft above ground level. The 865 lb rig takes up as little as 10 in. of space behind the cab of light trucks, the manufacturer says. It can be controlled from either side of the cab. Selling price is about $1,800. Stanco Mfgs. & Sales, Inc., 1666 Ninth St., Santa Monica, Calif.

New Aluminum Shapes For Architectural Design

Kaiser Aluminum now has a complete line of standard architectural aluminum extrusions, including several new shapes, available through its nationwide distributors.

The line includes gravel stops, copings, thresholds, window sills, ornamental handrails, pipe railings, facing and trim, rectangular and square tubing, and a selection of aluminum structural angles, channels, beams, Zees and Tees. Accessory items such as mitered and welded corners, caps, anchors, clips, and brackets are also available. Kaiser Aluminum & Chemical Sales, Inc., 919 N. Michigan Ave., Chicago 11, Ill.

Welder for Light Metals Uses Ordinary Current

A system for end welding studs to light-gage metals operates on a stored energy principle using either 115 or 230 volt, single-phase, 60 cycle ac power.

The equipment is called "PS-1 Percussive Stud Welding Unit." It will weld small studs and fasteners to various combinations of ferrous and non-ferrous metals, handling studs up to 3/16 in. dia. The average welding rate is six to eight studs per minute.

The equipment will work on thin metals down to and including 28 ga. The power unit weighs only 144 lb. A 2½-lb portable hand tool can be operated up to 50 ft away with the standard cable supplied. K S M Products, Inc., Merchantville, N. J.

Louvers Let the Air In But Keep the Weather Out

Weathertight louvers and louver penthouses are available in a new design under the name Vanco.

Both the panels and penthouse units are made in three types: standard stationary, stormproof stationary and adjustable. All three have a vertical gutter that prevents drippage or penetration of water from the outside.

In the stormproof type, baffles at the middle and top of the blades give added protection against extreme weather conditions.

The blades of the adjustable type may be operated by hand quadrant or chains with spring release. All types are usually delivered with commercial mill finish but are also available with caustic-etched, lacquered or anodized finishes. Bird and insect screens are available for all models. E. Van Noorden Co., 102 Magazine St., Boston, Mass.

Solving "parking" problems for river traffic

Our natural traffic arteries, the rivers, today bustle with increasing transportation of all kinds of bulk materials. Efficient "parking" facilities, such as this coal loading dock on the Ohio River are needed to load and unload barges at terminal points. Made up of a series of steel sheet pile cells, filled with sand and gravel and capped with concrete, these docks are low in first cost and need little maintenance. The number, diameter and height of cells is determined by dock size and location as well as variations in river level. Two or three or dozens may be used. Large installations, equipped with barge shifting and unloading machinery, have been constructed to handle as many as sixty barges.

More than 100 docks have been built in the last eight years, another example of Dravo's unique construction experience "in and around water." For more information on docks or any of the products and services listed below, write to DRAVO CORPORATION, PITTSBURGH 25, PENNSYLVANIA.

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last furnace blowers • boiler & power plants • bridge sub-structures • cab conditioners • docks & unloaders • dredging • fabricated piping

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ver sand and gravel • sintering plants • slopes, shafts, tunnels • space heaters • steel grating • towboats, barges, river transportation

Tuffy Wire Rop

"Preventative Maintenance" Will Give You Longer Wire Rope Service

Every motorist knows the importance of proper lubrication for cars. It's essential for wire rope, too. For wire rope is a "machine" of precision moving parts. And friction is enemy No. 1 of all machinery.

Lubrication during fabrication

There are two distinct phases of lubrication: in manufacture, and in use. Wire rope engineers consider the lubricant as part of the rope; the kind, consistency and amount of lubricants are controlled and applied as required. Applications are usually made hot for the inside and external surfaces.

Lubrication in the field

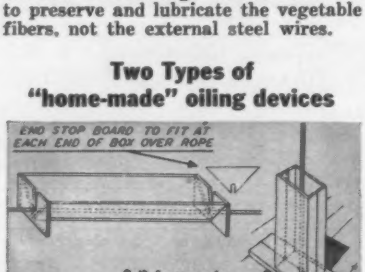
Here only an external application of lubricants is possible. It must penetrate to the inside of the rope to get a film of oil between the strands and the core. The lubricant can be applied either hot or cold, depending on its penetrating quality.

To find the best lubricant for your wire rope, talk to a local oil company engineer. He'll recommend the oil and method of application best suited to your needs.

How much and how often?

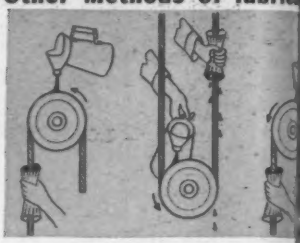
There's no set rule. It depends on service conditions. The heavier the duty, or the greater the number of bends, or the more corrosive the fluids in which the rope operates, the more frequent should be the lubrication. Remember one thing. The core is not an oil reservoir for external lubrication of the rope. No such action takes place. The oils "built" into the fiber core during its fabrication are to preserve and lubricate the vegetable fibers, not the external steel wires.

Two Types of "home-made" oiling devices



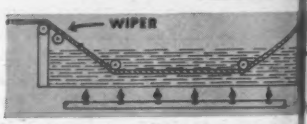
They're simple and do a good job. One is for vertical ropes, the other for horizontal. A heavy crankcase oil, cylinder oil or similar lubricant, preferably heated, is placed in the lubricators when the rope is run through.

Other Methods of lubric



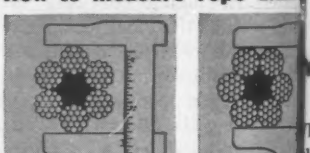
The pour-on method for manual lubric effective when penetrating, yet adhesive, used. Oil should be hot. Hold the wipin BEHIND the sheave. This catches any ex that would be carried on along the rope.

Metal split box for bath treatment has a burlap collar or wiper at outlet end.



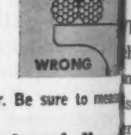
Hot bath method of applying heavier-bodi cant at high temperature. Gas burners or heat may be used. Pre-heated lubrication is more penetrating. Rope should run through to insure penetration.

How to measure rope diam



Use a machinist's caliper. Be sure to meas widest diameter.

How to measure tread diam



Select smallest s drum to be use new rope, and m actual diameter of Sheaves with corrugated with impression should placed with ne before installing wire rope.

New ropes are usually over-size. It is a to have groove diameters of sheaves or dr large as the actual calipered diameter of rope, or slightly larger. We recommend s follows:

Tips

Too much strength can be a weakness... Wire rope must be BALANCED

Sometimes extra strength is heavily stressed in selling wire rope. While strength is important in every operation where wire rope is used, it is not the only important quality, and there are cases where excessive strength is a liability.

For example, the manufacturers of scrapers have designed the components of their equipment to take certain loads. These loads are controlled by or subject to the ultimate strength of the rope. Larger ropes with their accompanying higher strength do not break but *the equipment itself begins to* break up. Another feature of scraper rope is resistance to crushing. Strength is not the factor which controls the best design to resist crushing.

Union Wire Rope gives you the PROPER BALANCE of strength, toughness, flexibility and other properties most desirable for rope efficiency and long life. Don't settle for less. Your Union Wire Rope distributor has the BALANCED rope for every use.

commended sizes:

Diameter of Rope	Minimum Dia.	Maximum Dia.
1/4-5/16	+ 1/64"	+ 1/32"
3/8-3/4	+ 1/32"	+ 1/16"
7/8-11/8	+ 3/64"	+ 3/32"
11/4-11/2	+ 1/16"	+ 1/8"
15/8-21/4	+ 3/32"	+ 3/16"
23/8 and larger	+ 1/8"	+ 1/4"

w to check groove diameter:

rdering is ABC-Simple!

o complicated codes or long list of ecifications. Just say "Tuffy," give pe (Scraper Rope, Dozer Rope, c.), length wanted and size. Just t easy!

Good Man to Know— Your Nearby Union Wire Rope Distributor

hether your wire rope need is a heduled replacement or a red-hot ergency, your Union Wire Rope stributor is ready with "right-now" rvice. He keeps varied stocks of nion standard constructions and e Tuffy Special Purpose Ropes. nd he's backed by quick service om his nearby Union Wire Rope pot.

it isn't rope you need, but advice a wire rope problem, he's just as ady to help. If you don't know your nion Wire Rope distributor already, ok under "Wire Ropes" or "Slings" your telephone directory yellow ges.

Special Purpose Ropes: tailored & BALANCED for special uses

Tuffy BALANCED Slings & Hoist Lines

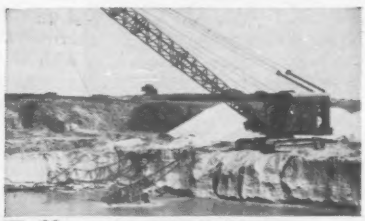
Top-performing team in every type of materials handling. Tuffy Slings are made of a patented, machine-braided fabric; stays extra flexible, can't be seriously hurt by knotting or kinking. Tuffy Hoist Line is a special construction of super flexibility and toughness.

Tuffy BALANCED Scraper Rope

It's flexible enough to withstand sharp bends, yet stiff enough to resist looping and kinking when slack. Moves more yardage per foot because it's specially built and balanced to take the beating of drum-crushing abuse.

Tuffy BALANCED Dozer Rope

Built to give you longer service with less downtime. 150' reels of 1/2" or 9/16" mounted on your dozers allow you to cut off worn sections without wasting good rope. Put Tuffy Dozer Rope on the job and watch costs go down!



Tuffy BALANCED Dragline Rope

Made to give you maximum abrasive resistance with super flexibility. Rides smoothly on grooves; hugs the drum when casting for full load. Consistently dependable in handling any material — wet or dry dirt, sand, gravel, rock, cement or minerals.

union Wire Rope **corp.**

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Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand.

James F. Armstrong

John B. Bonny

Moles Name '59 Award Winners

Moles award winners for 1959 are James F. Armstrong and John Bruce Bonny. Mr. Armstrong will receive the member award; Mr. Bonny is the winner for non-members.

The Moles, nationally prominent New York association of heavy construction men, will bestow these annual honors at its award dinner January 28 in New York City.

Mr. Armstrong, vice president of Peter F. Connolly Co., has been in heavy construction for more than 50 years. His reputation has been made largely in pneumatic caisson work for bridge foundations. He was with Senior & Palmer, Inc., and Arthur McMullen Co. in earlier years, and has worked on many big bridge projects in the metropolitan New York area. He is now with a Walsh-Connolly combine.

His nominator for the Moles Award made this point: "The names of McMullen, Senior, Palmer, Connolly and Walsh carry more weight than any listing of jobs. To have the respect of such men is the highest recommendation any construction man can have, and Jim is a construction man."

Mr. Bonny is vice president and general manager of Morrison-Knudsen, Inc., of Boise, Idaho. This 55-year-old construction man is a world-traveler, commuting 200,000 miles a year to MK's projects in Iran, Iraq, Morocco and points all over the western hemisphere. His creed: "The construction business is not only the most important of all businesses, but is one of the world's best hopes for the future."

This year's Moles award winners are the 19th pair to be honored by the construction organization. Past awards have gone to former President Herbert Hoover, Robert Moses, Admiral Ben Moreell, Peter Kiewit, Harvey Slocum and Lou Perini.

The winners were announced by Howard A. Collins, Moles president.

H. Buckley Dietrich Is New AISC President

H. Buckley Dietrich, president of Dietrich Brothers, Inc., Baltimore, Md., was elected president of the American Institute of Steel Construction, at its 36th annual convention. The organization represents 326 firms that account for most of the output of fabricated structural steel in the U. S.

Other AISC officers elected include: first vice president, James M. Straub, president, Fort Pitt Bridge Works, Pittsburgh, Pa.; second vice president, Harold G. Lewis, president, Flint Steel Corp., Tulsa, Okla.; secretary and counsel, M. Harvey Smedley, a New York City lawyer; and treasurer, Erwin P. Stupp, president, Stupp Brothers Bridge & Iron Co., St. Louis, Mo.

Mr. Dietrich replaces N. P. Hayes, as president. Mr. Hayes is president of Carolina Steel & Iron Co., Greensboro, N. C.

Election Results

22 construction men win; but 13 others beaten

Voters elected 22 of 35 construction men who ran for office in the recent election.

But the Democrats among them fared relatively better than the Republicans as might be expected.

Eleven of 13 Democrats won. But only half of the 22 Republican candidates made it.

• **In Pennsylvania,** Rep. Walter Mumma, (R.), a Harrisburg residential contractor, won reelection to the U.S. House of Representatives. But fellow Republican Thomas C. Anthony, a civil engineer, lost his House bid in normally Democratic Berks County.

Newton building contractor Marvin V. Keller, (R.), moved up to the state Senate. He had been a long-time member of the state House of Representatives. In another state Senate race, civil engineer Roy W. Smith, a Republican, lost in heavily Democratic York County. Mr. Smith is president of Capitol Engineering Co.

Of 10 contractors running for the Pennsylvania House of Representatives five won and five lost. The winners: Ralph D. Heavy, (D), Philadelphia demolition contractor; Albert E. Stausser, (R.), partner in the Strausser Construction Corp., Berwick; Samuel Mahan, (R.), Butler; James O'Donnell, (D.), Bethlehem; and Gus P. Verona, (D.), Pen Argyl. The losers: incumbent Rep. Roy W. Parry, (R.), owner of Parry and Co., Luzerne; Theodore S. Green, (R.), Philadelphia; Ralph Marino, (R.), Philadelphia; Rayford A. Robel, (R.), Johnstown; and Archie H. Sweeney, (R.), Ligonier.

• **In Ohio,** voters turned thumbs down on Elmer S. Barrett's bid for a seat in Congress. Mr. Barrett, (R.), Chillicothe consulting engineer, is the immediate past president of the Ohio Society of Professional Engineers.

• **In California,** two of three contractors running for state offices won election. Samuel R. Geddes, (D.), Napa and Montivel A. Burke, (R.), Alhambra were reelected to the state assembly. Democrat Frank D. Corbett, Sacramento general contractor, lost his bid for the state Senate.

• **In Idaho,** two contractors, both Republicans, lost their campaigns for the state legislature. Orson Grimmett, of Paris, tried for the House of Representatives and Ralph Wickberg, Kellogg, was aiming for the Senate.

• **In North Dakota,** Rep. Clifford L. Lindberg, (R.), head of Lindberg Builders, Inc., Jamestown, was returned to the state House of Representatives. Democrat Harvey W. Nelson, a Walsh County contractor, lost his try for the state Senate.

• **In Montana,** four contractors and a civil engineer were elected to the state legislature. One contractor lost. Frank D. Reardon, (D.), Butte, was reelected to the Senate; Mike Loughran, (R.), Butte civil engineer, Charles Cerovski, (D.), Lewiston contractor and John Karlberg, (D.), Missoula contractor are returning the House. But Republican Sen. Earl Moritz, a Butte contractor, lost his campaign for reelection.

• **In Illinois,** Republican Ben S. Rhodes, of Normal, a retired contractor, swept to his 11th term in the State House of Representatives and Dixon consulting engineer Charles K. Willett, also a Republican, won his sixth term in the house.

• **In Washington,** Republican William D. Shannon, Seattle consulting engineer, won reelection to the state Senate from the 43rd District, which he has represented for 12 years.

• **In Minnesota,** contractors G. J. Van de Riet, (R)., Fairmont, and Dan Conroy (D.), Dumont, were reelected to the state House of Representatives.

• **In Arkansas,** three Democratic contractors were elected to the state Senate the easy way—they were unopposed. They are Senators Artie Gregory, North Little Rock; Harry Screeton, Hazen; and Ellis Fagan, Little Rock.

Gilliss: Out and in

Bagshaw: In temporarily

Top Posts Get "Temporary" Men

A "temporary" director of public works has gone to work in California to replace G. M. Gilliss, who resigned November 10 to become "temporary" Los Angeles County Road Commissioner. He is T. F. Bagshaw, former assistant director.

Mr. Bagshaw's appointment will be shortlived since Governor-elect Edmund G. (Pat) Brown is expected to put his own man in the $20,000 a year state job in January.

Mr. Brown has already announced that he considers the position of public works director as one of the most important in the state government; he says he wants a "strong" man for the job.

California's director of public works serves as a member of the state's Toll Bridge Authority, its Public Works Board, and as Chairman of the State Highway Commission as well as on other boards, commissions and councils.

Mr. Gilliss resigned to take the $22,000 highway job in Los Angeles County. He is an accountant who was chosen for his administrative talents in a state requiring that county road commissioners be civil engineers unless approved by the county board of supervisors.

A management consulting firm told Los Angeles County it had been overemphasizing its technical tasks and needed a commissioner with exceptional administrative ability.

The County Board of Supervisors wanted Mr. Gilliss for the job and asked the county civil service commission to waive a competitive examination. However, the civil service commisison refused this request and is proceeding with plans to schedule a competitive examination. So Mr. Gilliss is appointed on a temporary basis; he began work November 11.

WELDED or RIVETED

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• Hoppers and Bunkers
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• Pressure Vessels
• Wind Tunnels
• Crane Bridge Girders
• Trolley Frames and Trucks
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• Furnace Roof Rings
• Design Conversion of Castings to Weldments

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Roller Gates
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MAXON DUMPCRETE CONCRETE SPREADER

If you're a concrete paving contractor, you'll want specifications, description, test reports, drawings and illustrations of the new Dumpcrete Spreader. Designed to work with low-cost Dumpcretes, the new spreader makes the "central-mixing—non-agitated hauling" concrete method more economical, more flexible and more productive than ever before.

MAXON CONSTRUCTION COMPANY, INC.
Manufacturing Division—
2600 Far Hills Building, Dayton 19, Ohio
Please send details on the new Dumpcrete Spreader

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TITLE_____
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Milwaukee—Twin Cities—Denver—New Orleans

Obituaries

William S. Hindman, 82, a retired chief of the bridge bureau of the Ohio State Highway Department, and associated with Ohio State University, Columbus, during the design and construction of Ohio Stadium in the 1920's.

Charles E. Hanlon, 51, water and sewer contractor in Dallas, Tex. He was a contractor in Austin for 12 years before recently opening an office in Dallas. Mr. Hanlon was a civil engineering graduate of the University of Texas.

Albert C. Shire, 62, builder and engineer for industry and government, in Minneapolis, Minn. Part of his career was spent as building consultant to the U. S. Air Force, the French Ministry of Reconstruction, the Rockefeller Foundation and the New York World's Fair of 1939.

William A. Joyce, 71, a civil engineer at the Pittsburgh Testing Lab, Buffalo, N. Y. Before coming to Buffalo in 1935 he was a construction superintendent for the Dominion and Canadian Bridge companies in Ontario.

Henry A. Whitcomb, 60, operations chief for 12 years of the New England Division of the Army Corps of Engineers. He was operations chief in the Providence, R. I., district office from 1936 to 1946. He was in charge of the Cape Cod Canal works and various flood control projects in Massachusetts and Rhode Island. During World War II, Mr. Whitcomb took part in the laying of a fuel pipeline under the English Channel to supply American forces in France.

James A. Green, 80, a civil engineer for 50 years before retiring in 1949. A University of Nebraska graduate, he had charge of building a number of dams in the west, including the Denver, Colo., reservoir.

Samuel L. Ruble, 61, professional engineer, in Indianapolis, Ind. He was chief architect for the Federal Housing Administration in Indiana for 20 years.

Thomas J. Wiggins, 78, retired general superintendent of construction for the George A. Fuller Co., New York. He supervised construction of the Statler Hotel in New York City; the Pennsylvania Railroad Station in Newark, N. J.; and the Haddon Hall Hotel in Atlantic City, N. J., and many other projects for the company, which he joined in 1902.

All internal parts, including the drain valve seat, are drawn through the top of the hydrant without disturbing the standpipe.

We can show you – right in your office – why Mathews dry-head construction is so important

No community can afford to take chances with its hydrants. They *have* to work—not just when they're new, but in every single emergency during the course of a long, long life. That's why the dry-head construction of the Mathews Flange Barrel Hydrant is so significant. It keeps sand and ice and sediment from accumulating and interfering with its instantaneous operation, a feature that can be highly important.

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14 ft ID—and with 80-ft spans

Completed only a few months ago, this is believed to be the world's largest above-ground steel pipe line designed without a single expansion joint. It replaces an old wood-stave tube, piers for which are visible in the picture.

About 3½ miles long, the line varies from 14 ft ID to nearly 15 ft OD, and is of 100 pct welded construction. For over one-half its length the pipe spans 80 ft, center-to-center of ring girder supports.

Located near the town of Hawley, in northeastern Pennsylvania, the line supplies water from Lake Wallenpaupack to a Pennsylvania Power & Light Company hydro-electric station. The pipe was fabricated and erected by Bethlehem Steel.

Would you like to learn more about the construction of this unusual line? We tell the story, in words and pictures, in our new 24-page booklet, "Building a Giant Water Line." A free copy is yours for the asking. Send in the coupon, or simply send us a brief card or note.

Publications Department
Bethlehem Steel Company
Bethlehem, Pa.

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Intake and Tunnel Bids Close

Low bid of $189 per lin ft for six-ft tunnel takes Erie County, N. Y. water supply contract

Unit prices seesawed between the two low bidders for an intake and intake tunnel for the Erie County, N. Y. Water Authority's Sturgeon Point water supply addition.

The 2,915-ft tunnel accounts for 48.2% of the total contract. The low price of $189 per lin ft, quoted by Philsan Co., New York City gave them a 4.6% overall advantage over their nearest competitor for the $1,143,235 award. The other tunnel bids ranged from $190 to $300 per lin ft.

Work includes construction of a concreted timber intake crib, 2,900 ft from the shore of Lake Erie, to 35 ft below mean lake level with a shaft extending approximately 57 ft below bottom of crib; and 2,900 ft of concrete lined tunnel, of a minimum diameter of 6 ft, to connect the intake in the lake to the new filtration plant now under construction.

Class A concrete requires 6-7 bags of cement per cu yd and must develop a compressive strength of 3,000 psi. Class B requires 4-5 bags and a compressive strength of 2,000 psi.

The contractor furnishes all materials. Rail and truck transportation is available. The railroad is 5 miles from the site.

Prevailing wages in Buffalo include: carpenters $3.375; cement finishers $3.56; truck drivers $2.775; common laborers $2.835.

The bidding went like this:

1C Philsan Co., New York City	$1,143,235
2 James McHugh Constr. Co., and Greenwood & Majestic Constr. Co., Chicago, Ill.	1,198,530
4 MacLean Grove & Co., New York City	1,644,170

Bids: 9-4-58 Items	Unit	Quantity 1C	Unit Prices 1C	2
Diamond drill core borings	lf	3,000	$12.00	$5.00
Exc in open cut for raw water pump sta, distribution chamb & other purposes, earth	cy	1,200	5.00	12.00
rock	cy	3,900	17.50	16.00
Conc masonry in distribution chamb & other uses, cl A	cy	210	150.00	100.00
cl B	cy	100	60.00	35.00
Steel reinforcement	lb	2,000	0.20	0.28
Intake shafts at intk crib..c	lf	60	1,800	1,700
at distri chamber..c	lf	85	1,500	1,000
crib.....c	ls	job	125,000	146,870
Tunnel.....c	lf	2,915	189.00	234.00
Cement mortar protective coatings.....pl & main	cy	10	200.00	100.00
Supports, intake shfts&tunn, roof bolting type.....f&i	lb	10,000	1.00	6.00
structural steel.....f&i	lb	5,000	1.00	0.25
Drill holes for roof bolting for grip, pins & dowels, exploration & other purposes	lf	1,500	3.00	0.90
Pumping from intake shafts & tunnel	mil gal	5,000	5.00	4.00
Timber, place, maint & remov	Mfbm	10	400.00	160.00

Bids: 9-4-58 Items	Unit	Quantity	Unit Prices 1C	2
Connection to group pipes	ea	100	25.00	8.00
Grout placed under pressure	cf	2,000	5.00	7.00
Steel pipe for grouting & drains.....f&p	lf	2,000	3.00	0.50
Sand & gravel in filters or for other uses	cy	10	15.00	9.00
Sluice gates&misc metal.f&i	ls	job	7,000	8,700

c construct f&p furnish & place f&i furnish & instal
Awarded Oct. 1958. Completion schedule: 400 cal days.

Labor, Materials Separated on Ohio Water Mains

For this 1,994 ft water main job for Sewer District #6, Liberty Township, Trumbull County, Ohio, the $6,735 award went to DeNiro Bros., Youngstown, O.

The contract is for the 6 and 8 in. Class 150 cement asbestos pipe alternate, which was pitted against cast iron, ASA standard A 21.6 or A21.8. DeNiro was the only one of nine contractors who did not bid or both alternates for the mains.

Kenneth Lynn, Warren, O., is the consulting engineer to the Commissioners of Trumbull County.

The contractor furnishes all materials.

Minimum wages range from a high of $3.035 for skilled to a low of $2.71 for common laborers.

The nine bids included:

Cement Asbestos Water Mains

1C DeNiro Bros., Youngstown, O	$6,735
2 G. & B. Excavating Co.	7,038
9 J. S. Durig Co.	9,223
EE Kenneth Lynn, Warren, Ohio	$10,000

Bids: 10-17-58 Items	Unit	Quantity	Unit Prices 1C Labor	Materials
Cmt asb water mains, cl 150, in place, 8"	lf	611	$0.63	$2.50
6"	lf	1,383	0.46	2.00
Cast iron, special	t	0.60	20.00	280.00
Gate valves & boxes, 8"	ea	2	5.00	95.00
6"	ea	6	2.00	70.00
Fire hydrants, 1-4½" steamer & 1-2½" haze nozzle	ea	3	20.00	160.00

Completion schedule: 15 calendar days
Surety & maintenance bond, $68.04

Cast Iron Water Main Alternate

1 G. & B. Excavating Co.	$7,755
2 Bar-O Construction Co., Inc., Youngstown, O	8,041
8 J. S. Durig Co.	10,499
EE Kenneth Lynn, Warren, Ohio	$10,000

Bids: 10-17-58 Items	Unit	Quantity	Unit Prices 1 Labor	Materials
Cast iron water mains, in place, 8"	lf	611	$1.15	$2.70
6"	lf	1,383	1.00	1.90
Cast iron, special	t	0.60	0.05	0.20
Gate valves & boxes, 8"	ea	2	35.00	89.00
8"	ea	6	3.00	70.00
Fire hydrants, 1-4½" steamer & 1-2½" haze nozzle	ea	3	20.00	190.00

Completion schedule: 60 calendar days
Surety & maintenance bond, $73.88

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*The Bridge Division of the State of Texas Highway Dept. uses Kern Instruments

WORLD FAMOUS FOR
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DKMI TEN SECOND THEODOLITE (with optical micrometer)

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Unique—a Kern first! Centers instruments in seconds with remarkable accuracy. Assures exceptional stability with ball-and-socket head, supporting instrument coupling.

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The FINEST in SURVEYING EQUIPMENT
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Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate Ready mixed Concrete, Asphalt: Last, Nov. 6; Next, Dec. 4.
- Iron and Steel Products, pipe: Last, Nov. 13; Next, Dec. 11.
- Wood Products, Glass, Explosives, Chemicals: Last, Nov. 20; Next, Dec. 18.
- Wage Rates, Building Board, Lath, Insulation: Last, Oct. 30; Next, Dec. 25.

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, in paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$149.90p	$149.90p	$299.80p	$334.55p	.....	.....	$30.80p	$32.70p	$23.50	$24.50	$ .....
Baltimore	217.00	231.00	434.00	491.00	602.00	690.00	36.00k	41.00k	35.00	23.20	.....
Birmingham	135.00p	152.00p	.....	303.00p	376.00p	465.00p	27.00ff	38.00y	35.02	22.30	25.33g
Boston	232.00t	248.00†	463.25†	556.00†	.....	.....	41.50p	46.50p	39.20†	31.20†	.....
Chicago	135.00	145.00	290.00	.....	.....	.....	30.00	32.00	38.00	33.20o	.....
Cincinnati	205.00j	225.00j	296.00jkl	213.00j	288.00j	314.00j	48.75j	47.00j	30.04j	26.04j	30.04j
Cleveland	209.00	223.00	.....	475.00	.....	.....	38.00	41.00gg	31.00	25.00	.....
Dallas	152.00	152.00	300.00	364.50	446.25	552.50	7.50	48.00	41.80	24.58	25.50
Denver	.....	.....	.....	.....	.....	.....	21.50	49.50	46.00p	42.00p	46.00p
Detroit	205.00	219.00	410.00	.....	508.00	674.00	47.50p	48.00p	38.00	30.00	.....
Kansas City	158.00	188.00	312.00	312.00	400.00	500.00	33.00	33.00	36.26	34.26	29.76
Los Angeles	r	r	r	r	r	r	32.50§	.....	38.00	38.00	39.00
Minneapolis	192.00p	215.00p	437.00p	215.00pw	.....	.....	45.60rp	54.00y	47.00bbc	37.00bbc	49.00bbc
Montreal	170.00ss	178.00ss	325.00ss	270.00q	400.00q	.....	48.25b	56.30b	39.00	22.00	13.25
New Orleans	186.00	186.00	380.00	380.00	.....	.....	42.00	55.00	44.00	33.00	33.00P
New York	176.90h	188.70h	283.00ch	285.50hn	.....	.....	44.00	.....	40.00	37.00	.....
Philadelphia	169.00	180.20	337.90	405.00	.....	.....	30/34	38/42	27.60	25.60	3.17m
Pittsburgh	147.50t	157.73t	295.00t	335.00t	435.00t	500.00t	39.00t	46.00t	36.00t	31.00t	.....
St. Louis	172.00n	180.00p	375.00p	401.00p	450.00	621.50	41.50t	43.00	0.95ss	.80ss	1.35z
San Francisco	156.85°	177.10°	235.30ddf*	.....	.....	.....	43.00*	43.00*	29.24	29.24	31.74
Seattle	235.00p	270.00p	490.00p	265.00pw	.....	.....	48.00	62.00	52.00bb	38.00bb	4.50mll
Toronto	158.00	173.50	336.00	263.00f	378.00	.....	35.00	63.00	36.00	33.50	31.50

*§ F.o.b. yard. *° F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *a Smooth. *b $4.50 del. *c 8 x 12 x 12 in.-6 cell. *d Pulverized hot. *e 5%, 10th following month. *f 8 x 8 x 12. *g Lumps, $28.72. *h F.o.b. trucks, job site N.Y.C. *i 60 lb sacks. *j Truck load or over. *k $1.00 discount. *l Red face. *m Per bbl., 180 lb. processed. *n 7¾ x 7¾ x 12. *o Mason's double hydrated pressure. *p Truck lots. *q Provincial and Municipal tax extra. *r Not used; earthquake damp 400 rolls o proof $79. *s 8 x 16 x 12. *t 2% cash. *u Incl. Federal tax. *v Sand lime. *w 5 x 8 x 1 12. *x 80% common. *y Chi common. *z Pebble; 80 lb sack. *aa 50 lb sack. *bb LCL. *cc Smooth. $51.50 Rough. *dd 6 x 12

PAINT, ROOFING—F. O. B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases in oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 300 lb. bbl. per ton
Atlanta	$14.25	$30.125	$3.59	$3.86	$3.31	$3.39	$2.20	$2.62	$0.67	$57.75
Baltimore	14.00	29.75	3.00	4.40	3.50	2.78	4.25	4.25	.48	54.25
Birmingham	14.25	30.125	3.90	3.40	....	3.09	2.29ii	2.29ii	.82ff	45.00w
Boston	14.00	29.75	....	....	....	3.81q	2.56g	2.83g	.50g	58.00g
Chicago	14.00	29.75	....	....	....	4.05jx	3.02jo	3.32jo	46.00jbbr	67.70z
Cincinnati	14.00	29.75	....	....	....	3.13	2.70	2.73	.428y	55.96
Cleveland	14.00	29.75	2.49pqq	3.30gg	2.90gg	3.51q	2.44o	2.85	.58y	49.00gg
Dallas	14.25	30.50	....	3.25ll	....	3.00n	3.00o	3.00o	.470	65.00hh
Denver	14.50	30.25	3.98	5.20	3.70	3.96	2.16o	2.55o	.48ff	50.00
Detroit	14.00	29.75	2.70	3.95	2.70	3.11	2.23f	2.42f	.512ff	49.00
Kansas City	14.00	30.50	3.90	3.43	3.01	3.88ii	2.61o	2.61o	.71y	.....
Los Angeles	14.00	30.00	3.30n	4.50n	4.20n	3.20n	2.15nii	l	.70ny	l
Minneapolis	14.00	29.88/29.75	....	....	....	3.09	2.52hi	2.42hi	.442i	50.00r
Montreal	.....	24.05	5.02Dff	5.94zff	4.65kff	5.40	4.65f	4.65f	1.60	.....
New Orleans	.....	.....	....	....	....	2.78	1.98	2.85	0.680	.....
New York	13.00C	29.75	....	....	....	3.20	2.16o	2.45o	.425z	49.00*
Philadelphia	14.00	29.75	3.60	3.40/3.65	3.50/4.00	3.00/3.30	2.54o	2.54o	.37/.45	48/51
Pittsburgh	14.00	29.75	2.20/F	2.25/G	2.25/G	3.37o	2.50z	.....	.45	62.00
St. Louis	14.00	29.75	....	....	....	3.27ss	2.39kk	2.85kk	.28y	62.00
San Francisco	14.00	30.00	3.20	4.30	3.80	2.95	2.09aa	3.21	.50jj	56.00
Seattle	14.00	30.25	3.47	4.19cc	....	4.02gc	3.50bcc	.....	.55cc	51.40cc
Toronto	.....	.....	5.00	5.75	5.50	4.50	3.45c	2.65o	1.25i	50.00i

*† Delivered. * Note: Red lead in oil 50% higher than white lead in oil. *° Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e 15 lbs. *f Per 432 sq ft. *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers *k Over 50% ferric oxide. *l Not used. *m F.o.b. city. *n Per 60 lb roll. *p 6-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *w Price to contractors $1.25 less. *x Ready-mixed. *y 55-gal container. *z Drums. *aa 15 lb, sq ft roll. *bb Roofers coating and cement. *cc LCL, truck delivery. *dd Asphalt pitch in 100 lb package. *ff 5-gal drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per roll. *jj Asbestos roof coating. *kk 400 lb barrels. *ll ASTM Spec. D962-49 *C 95%. *D Std. black. *F Mill. spec.: E TTP27; F TTV81; G TTP31. *R revised.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	PLASTER‡ Gauging per ton	VERMICULITE‡ Home Insulation pellets	VERMICULITE‡ Plaster aggregate	VERMICULITE‡ Concrete Aggregate Untreated	PERLITE‡ Plaster Aggregate	PERLITE‡ Concrete Aggregate Untreated	ALUMINUM SHEET†† Flat .102" th 36"x96" & 48"x144" per lbjt	ALUMINUM SHEET†† Corr roof .032" th 35"x12' per sbs	STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96-120" per cwthh	STAINLESS STEEL† SHEET-TYPE 302g 26 ga 36"x120" per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ⅜"b	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ½"c
			per bag of 4 cu ft										
Atlanta	$31.00	$36.00	$1.55z	$1.65z	$1.80kl	$1.65	$1.65	$0.424n	$9.45n	$61.44n	$67.50	$16.74f	$23.41f
Baltimore	23.80	34.60	0.95	1.15	1.15	1.15	1.65	0.487	0.489r	64.70	73.45	0.1674	0.2371
Birmingham	33.00	39.00	1.55	1.55	1.80l	1.55	1.55l	0.458d	10.48	67.34	76.09	0.1620	0.2291
Boston	22.00	30.00	1.40	1.40	1.45	1.45	1.50	0.462	29.35p	65.42dd	71.92ddff	0.1680	0.2345
Chicago	26.80	26.80	1.55	1.00	1.60l	1.60	1.60	0.506z	10.294n	65.15aee	73.90aee	0.1644	0.2295
Cincinnati	28.00°	28.00°	1.75	1.75	1.75	1.85	1.90	0.434	9.56	65.28	74.03ff	0.1668	0.2241
Cleveland	28.00	44.70	1.13k	1.16ii	1.24l	1.45	1.45	0.458aa	8.48	65.33oo	74.05oo	16.80f	23.45f
Dallas	30.65	32.65	1.07	1.23	1.32	1.23	1.32	0.484	0.517r	65.00	78.00	0.1520	0.2170
Denver	25.00	25.00	1.50	1.40	1.50	1.40	1.55	0.446	9.75	67.32gg	76.09gg	0.1772	24.69
Detroit	26.00	26.00	1.27	1.31	1.40	1.43k	1.51k	0.456n	10.376n	65.15n	79.90n	22.00f	28.75f
Kansas City	30.00	35.60	1.14	1.18	1.26l	1.18	....	0.444	9.50	67.50	76.25	16.80f	23.45f
Los Angeles	27 00	28.00	1.25k	1.20k	1.25	1.06	1.10	0.486	10.543d	67.02	75.77	0.1620	0.2261
Minneapolis	35.00	33.00	1.55	1.70	1.80	1.40	1.40	0.468	16.23w	65.71	2.21ff	0.1644f	0.2295
Montreal	27.60h	35.60k	1.25	1.40	1.50	1.15r	1.15r	0.495	12.10	64.75	.....	0.1827	0.2160
New Orleans	34.00	48.00	1.25	1.25	1.25	1.25	1.25	0.50	8.715	71.50	72.45	0.1585	0.2200
New York	25.25	31.25	1.35	1.30	1.50	1.40	1.40	0.493ad	10.929a	68.58	77.33	16.08f	22.44f
Philadelphia	23/25	32.00	1.35	1.35	1.40l	1.05qq	1.05qq	0.44aw	9.46a	66/68a	75/77a	15.62f	21.76f
Pittsburgh	30.00nn	33.00nn	1.60nn	1.50nn	1.35	1.73	1.73	0.452	9.46	64.00	76.25pp	0.1430	0.1595
St. Louis	29.00	40.00	1.35	1 60ff	1.85	1.60	1.60	0.452	10.11	65.61	72.11y	16.44fm	22.95fm
San Francisco	29.50	30.50	1.38	1.38	1.50	1.38o	1.58o	0.502	9 05	67.10	73.60	0.1680	0.2345
Seattle	42.40	45.60	1.55	1.25k	1.85l	1.50k	....	0.50	9.90	67.02	75.77	0.1680	0.1876
Toronto	28.00	45.50	1.20	1.30	1.35l	....	1.55	0.3995	24.75ae	73 74	86.52	0.2662	0.2870p

‡trucklots, delivered †fob warehouse *fob city *a delivered *b ½" O.D. *c ⅝" O.D. *d 0.100"th *e 34" x 60" sheet *f per 100 ft *g 5 tons & up: cold roll, anneal & pickled 2B finish *h incl. Federal tax *i add 25c for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-10M ft *n fob mill fr equalized with nearest stocking competitor *o 250 sacks or more *p 100 sq ft *r per lb *s 30 lb bag *t 36" x 96;-10.81 lb/sh; 48" x 144"; 21.7 lb/sh *u 19.31 lb/sh *v fob plant *w 48" x 144" *x 100th *y 27 gauge *aa 16M lb & up *dd add $1.00 cwt boxing *ee 4 tons & up *ff 26 ga *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 60.4-lb, per sh *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt; 10.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *qq Philadelphia and suburbs *R revised.

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate Ready mixed Concrete, Asphalt: Last, Nov. 6; Next, Dec. 4.
- Iron and Steel Products, pipe: Last, Nov. 13; Next, Dec. 11.
- Wood Products, Glass, Explosives, Chemicals: Last, Nov. 20; Next, Dec. 18.
- Wage Rates, Building Board, Lath, Insulation: Last, Oct. 30; Next, Dec. 25.

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft 3/8"	1/2"	GYPSUM BOARD LATH plain or perf per Msq ft 3/8" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft 1/2" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft 25/32" sq ed	25/32" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft 1/2"	MINERAL WOOL INSULATION loose, per 40-lb bag a	3" batts per M sf a	GLASS FIBER INSULATION loose, per 40-lb bag a	3" batts per M sf a	ALUMINUM FOIL 0% Kraft Expansible 1 side foil per roll of 250 s. f.	Blanket 2 layers foil per Msq. ft
Atlanta	$70.00	$80.00	$43.50	$70.00	$70.00	$127.00	$70.00	$1.59s	$80.00	$2.00b	$75.00	....	....
Baltimore	51.70f	45.55f	34.25f	55.35f	65.00f	108.50f	69.00f	1.30	68.50	1.50	45.00	$4.00g	$33.50
Birmingham	68.50	57.00	47.77	75.00	65.00	136.50	81.00	1.49	70.00	1.69	75.00	3.15g	....
Boston	60.00m	50.00m	36.00m	60.00m	65.00m	120.00m	79.00m	1.45b	75.00	....	65.00	5.20	$3.50g
Chicago	67.00	54.00	45.00	63.00	67.00	125.00	67.00	1.85	80.00	....	63/65t	5.25g	....
Cincinnati	48.00w	42.85w	32.05w	51.10w	70.00w	125.00w	72.50w	1.20	65.00	1.30	76.50	3.12f	29.00
Cleveland	62.00	56.50	41.50	65.00	75.00	125.00	80.00	1.35/1.50	72.00	....	55.00e	17.50h	55.00
Dallas	55.00	52.50	42.50	60.00	68.50	118.00	68.50	2.00	62.25	1.45	66.15	4.50gA	....
Denver	62.00	54.50	41.00	62.00	75.00	126.00	74.00	....	71.00u	1.30p	60.00s	11.00r	21.00
Detroit	64.00	53.00	37.00	66.00	60.50	100.50	60.50	....	....	1.95b	58.00	....	....
Kansas City	65.00	55.00	40.00	....	72.00	115.00	75.00	1.40	75.00	2.00	75.00	3.60d	$3.90z
Los Angeles	66.00	60.50	0.33z	64.50	75.00	125.00	80.00	....	68.00	1.35s	64.00	4.40g	....
Minneapolis	75.00	65.00	0.41z	80.00	78.00	140.00	78.00	2.00y	80.00	1.80	80.00	5.50	....
Montreal	56.00	47.40	36/39	53.00	63.25	....	68.00	1.50	66.00	1.80	66.00	9.00g	55.00
New Orleans	60.00	50.00	45.00	60.00	75.00	140.00	72.50	1.75	65.00e	....	....	....	....
New York	55.25	47.25	36.25	54.25	75.00	120.00	75.00	1.65b	68.50	1.65b	68.50	4.25i	52.50c
Philadelphia	50/55	48/53	36.40	49/54	68/73	105/110	55/65	....	60/70	....	70/75	5.60/6.34	40/50
Pittsburgh	....	65.00	40.00	....	62.50	102.50	57.50	1.05s	55.00s	1.05s	55.00s	3.80dg	38.50
St. Louis	67.00	56.50	40.00	70.00	76.50	121.50	80.00	1.35y	85.00	1.65	65.00	4.50dg	....
San Francisco	57.00	48.00	0.35z	58.00	70.00	112.00	69.00	1.60	66.50	1.60	66.50	4.95	55.00
Seattle	58.30	57.65	51.05	65.50	74.50	125.00	73.50	1.60z	74.00	1.90*p	50.00*f	4.25	46.50
Toronto	55.00	47.00	38.00	64.50	75.00	.....	.....	1.50	62.50	....	62.50	16.00s	46.00

**e F.o.b. warehouse. **n Semi thick. **p 30# bag. **c 12' to 24' width. **t 40# kraft paper, 5 Msf, 100/500 rolls. **c 20# sq ft bag, 4" thick. **f Full trailer loads. **g 80# kraft paper backing 400 rolls or over. **h LCL. **i 40#. **j 80#. **l 2". **m 10 ton quantities. **n Distributor's siding. **o Per Msf roll. **p 32# bag. **q 500 sf. **r Per cwt. **s 35# bag. **t 25# bag. **u Flame proof $75. **w F.o.b. city. **x Sq. yd. **y 30# bag. **z Spun rock wool, 3½ cu ft bags. **A 650 sf.

HOURLY WAGE RATES—Base rate + fringe benefits

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor— Building	Heavy Cons
Atlanta	$2.75	$2.05	$3.15+7½[d]	$3.225	$3.125	$3.50+10%[c]	$3.30+25[d]	$1.70	$1.70
Baltimore	3.95+10%[d]R	3.20+7½[d]	3.90+7½[d]	3.80/3.95+10%[d]Q	3.60+7½[d]	3.425+7½[d]	3.30+7½[d]	2.05+7½[d]	2.05+7½[d]
Birmingham	3.85	2.95	3.35+10%[d]K	2.77e	3.17	3.425	3.40+10%K	1.75	1.85
Boston	3.80+20[e]	3.40+10[d]	3.90+20[e]	3.77½+10[d]	3.65+35[e]	3.70+12[d]S	3.20+10[d]	2.55+7[d]	2.60+7[d]
Chicago	3.87½+7½[c]	3.65+20[e]	4.00+16[d]	3.55+5[d]	3.70+23[e]	3.90+12[c]	3.75+22[e]m	2.77½+7½[c]	2.77½+7½[c]
Cincinnati	3.55	3.57½	3.60+10[d]	3.375/3.60	3.62½	3.82+4[d]V	3.80+9½[e]	2.62½	2.525
Cleveland	3.805+10%[d]	3.83	3.73+10%[d]	3.83	3.83	3.855	3.64+10%+R	3.10	3.005
Dallas	3.875	3.175	3.30+7½[c]	3.325	3.56¼+10%[c]	3.375+7½[d]	3.375+8½[d]	1.70	1.70
Denver	3.75	3.34	3.175+7½[d]	3.05	3.475+12½[dA]	3.60+14[d]	3.55+10%[d]	2.17	2.17
Detroit	3.77+38½[d]	3.40+40[d]	3.75+22½[d]	3.47+25[b]	3.66+34[e]J	3.85+35½[c]	3.73½+14[c]B	2.65+33[e]	2.80+10%[d]
Kansas City	3.85	3.325	3.40	3.345	3.625	3.60+28[c]O	3.40+9[d]T	2.355	2.405
Los Angeles	3.85+10%[b]b	3.375+10%[d]	3.85+20½[b]b	3.41+10%[d]	4.00+30%[d]I	4.15f	3.80+38½[c]f	2.68+10%[d]	2.68+10%[d]
Minneapolis	3.725	3.30	3.47	3.30	3.40+23[e]O	3.38+30%[e]	3.42+20%[e]	2.55	2.55
New Orleans	3.525+5[d]	3.00	3.30+7½[d]	3.125+7½[d]	3.12+5[d]	3.475+7½[d]	3.40+15[c]	1.75	1.75
New York	4.45+38½[b]	4.10+33½[b]J	4.30+36[e]	4.35+35[d]I	4.35+52½[d]	3.90+51%[e]B	4.30+47½[c]L	3.00+21½[f]	3.60+21½[f]
Philadelphia	4.00+17½[d]	3.635	4.23+17½[d]M	4.095+10[d]	3.90+15[d]	4.07½+16%[e]	4.00+11½[c]	2.35	2.65
Pittsburgh	4.20+20%[e]	3.675+10%[d]	4.00+20%m	3.64+10%[d]	3.825+20%[e]	4.35+32½[d]	4.00+20%[e]	2.45+20%[e]	2.30+20%m
St. Louis	3.90+31½[c]	3.575+10%[d]	3.60+71%[d]	3.675[f]	3.80+7½[d]	3.97½+29.8%[d]	3.92½+27½[e]	2.625+10%[c]	2.625+10%[d]
San Francisco	3.95+52½[d]Q	3.30+32½%m	3.85+20%m	3.405+10%[d]	3.74+52½%m	3.91+34½[d]U	3.70+46%E	2.685+10%[c]	2.685+10%[d]
Seattle	3.90+10%[d]	3.13+10%[d]	3.40+10%[d]	3.20+20%[e]	3.40+10%[d]	3.65+20%[d]	3.70+23%[f]	2.70+10%[d]	2.70+10%[d]
Montreal	2.30+5%[d]	2.10+5%[d]	2.25+5%[d]	2.00+5%[d]	2.35+5%[d]	2.30+5%[d]	2.32+5%[d]	1.50+5%[d]	1.50+5%[d]
Toronto	2.95+12%[d]	2.65+11%[d]	2.55+10%[d]R	2.75+11%[d]	2.90+19%[d]	3.00+13%[d]	2.79+17%[d]R	1.70+7%[d]	1.70+7%[d]

ENR Skilled Average (Bricklayers, Carpenters, Iron Workers): $3.756. ENR Common Average $2.480

R: revised.

	Truck drivers 1½ T	under 4 cy	over 4 cy	Tractor Operators Incl. bulldozers 24-40 hp	70-100 hp	100 & over	Tractor scraper 15-16 cy	Power cranes & shovels ½ cy	¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.70	$1.80	$2.05	$2.70	$2.85	$2.85	$2.70	$3.225	$3.375	$2.70	$2.625	$1.77
Baltimore	2.00+7½[d]	2.00+7½[d]	2.10+7½[d]A	3.40/3.55 +10%[b]	3.40/3.55 +10%[b]	3.40/3.55 +10%[b]	3.40/3.55 +10%[b]	3.80/3.95 +10%[b]	3.80/3.95 +10%[b]	3.40/3.55 +10%[b]	2.85/3.00 +10%[b]	2.10+7½[d]
Birmingham	1.83	2.02ff	2.35oo	2.79	2.79	2.79	2.93	2.93	2.93	2.89	2.52	1.90
Boston	2.305e	2.45e	2.65e	3.40+10%[ed]	3.40+10%[ed]	3.40+10%[ed]	3.40+10%[ed]	3.775+10%[e]	3.775+10%[e]	3.40+10%[e]	3.325+10%[e]	2.60+7%[e]
Chicago	2.36+15%[fo]	....	....	3.30+5[e]	3.45+5[e]	3.20+5[e]	3.00+5[e]	3.90+5[e]	3.90+5[e]	3.25+5[e]	3.10+5[e]	....
Cincinnati	2.45+2½[ee]	2.55+2½[ee]	2.65+2½[ee]	3.375	3.375	3.375	3.375	3.375	3.60	3.60	3.60	3.09
Cleveland	2.76+10%[e]	2.75+10%[e]	2.75+10%[e]	3.58	3.58	3.58	3.58	3.83	3.83	3.56	3.455	3.455
Dallas	1.70	1.70	1.70/2.625[l]	1.70/2.625[l]	1.70/2.625[l]	1.70/2.625[l]	1.70/2.625[l]	1.70/2.625[l]	1.70/2.625[l]	1.70/2.625[l]	1.70/2.625[l]	1.775/2.00[l]
Denver	2.30	2.40	2.55	2.30	2.90	2.90	2.90	3.05	3.05	2.90	2.90	2.45
Detroit	2.80	2.80	2.80	3.50+10%[e]	3.50+10%[e]	3.50+10%[e]	3.50+10%[e]	3.50+10%[e]	3.50+10%[e]	3.50+10%[e]	3.195+10%[e]R	2.78+25%[ee]
Kansas City	2.33e	2.33e	2.405e	2.65	3.10e	If 10e	3.10e	3.345	3.345	3.10	3.345f	2.45
Los Angeles	2.83+10%[e]	2.83+10%[e]	2.01+10%[e]R	2.71+10%[e]	3.71+10%[e]	3.71+10%[e]	3.81+10%[e]	3.81+10%[e]	3.81+10%[e]	3.81+10%[e]	1.93+10%[e]	2.89+10%[e]
Minneapolis	2.55	2.55e	2.70e	2.93	3.15e	....	3.15	3.37e	3.63e	2.93	2.82	2.70
New Orleans	2.475+7½[e]	2.475+7½[e]	2.475+7½[e]	3.125+7½[d]	3.125+7½[d]	3.125+7½[d]	3.125+7½[d]	3.125+7½[d]	3.125+7½[d]	3.125+7½[d]	2.475+7½[d]	1.85
New York	2.21+22½[b]	3.025+23½[b]b	3.025+23½[b]b	3.725+30%[d]	3.725+30%[d]	3.725+30%[d]	3.85+31%[d]	4.60+37%[d]	4.60+37%[d]	3.85+31%[d]	3.85+31%[d]	3.45+28%[d]
Philadelphia	2.315/2.45+12½[e]			3.34/4.09½+10%[e]			3.34/4.09½ +10%[e]	3.34/4.09½+10%[e]		3.34/4.09½ +10%[e]	3.34/4.095+10%[e]	2.35+15%[e]
Pittsburgh	2.37+20%[e]	2.51+20%[e]	2.61+20%[e]	3.44+10%[e]	3.44+10%[e]	3.44+10%[e]	3.44+10%[e]	3.64+10%[e]	3.64+10%[e]	3.64+10%[e]	3.15+10%[e]	2.30+20%[e]
St. Louis	2.65+7½[ee]	2.70+7½[e]	2.70+7½[e]	3.675kk	3.675kk	3.675kk	3.675kk	3.675kk	3.675kk	3.675kk	3.125kk	3.125kk
San Francisco	2.81+10%[e]	2.75+10%[e]	2.89+10%[e]	3.70+10%[e]	3.70+10%[e]	3.70+10%[e]	3.70+10%[e]	3.85+10%[e]	3.85+10%[e]	3.75+10%[e]	3.10+10%[e]	2.955+10%[e]
Seattle	2.87+17½[ee]	2.87+17½[ee]A	3.07+17½[ee]A	3.26+20%[ee]	3.26+20%[ee]	3.26+2[e]	3.26+20%[ee]	3.63+20%[ee]	3.63+20%[ee]	3.35+20%[ee]	2.99+20%[ee]	2.90+10%[e]
Montreal	1.50+3[ee]	1.50+3[ee]	1.50+3[ee]	1.70+4[ee]	1.93+4[ee]	1.93+4[ee]	1.93+4[ee]	2.19+5[ee]	2.19+5[ee]	1.93+4[ee]	1.90+4[ee]	1.80+4[ee]
Toronto	1.75+7%[ee]R	1.75+7%[ee]R	1.75+7%[ee]R	2.25+9%[ee]	2.25+9%[ee]	2.25+9%[ee]	2.25+9%[ee]	2.75+11%[ee]	2.75+11%[ee]	2.25+9%[ee]	2.30+9%[ee]	2.30+9%[ee]

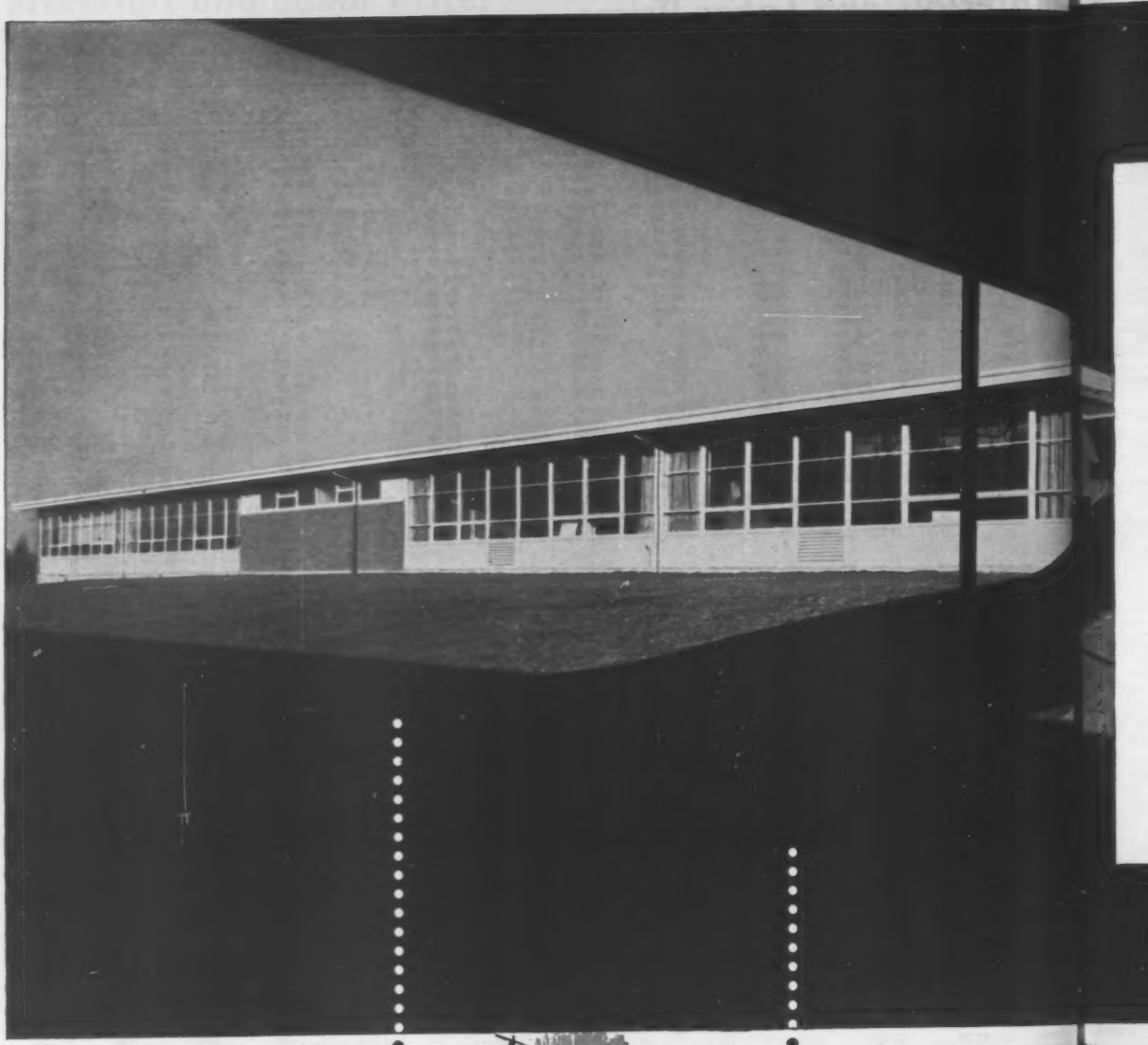
**h H & WF. **b lower rates, straight time; other broken. **c 2-axle; 10 wh. 3 axle $2.45; Euclid $2.65. **l intermediate. **e bldg contr.; highway $2.45+7¢ WF. **f less than 2-T. **g up 6 cy. **h 4% WF, 4% PF. **i 6-8 cy. **j plus $2 pd by employer for hosp. death benefits to family. **k bldg constr; steel contr $3.475. **l higher rates are union, other taken from min. wage approved by County Comm. Court. **m 10¢ H & W, 10¢ PF. **n flatbed. **o under 10 cy. **p over 10 cy. **q over 50 hp. **r blade grader. **s F. **t single. **u Incl. 10¢ H & W. **w 7½¢ H & W. 5¢ PF. **x 7½¢ WF, 10¢ PF. **y to 3½ cy. **z 3½ cy & over. **aa plus W & PF. **bb 3% WF, 2% PF; plus 11 PH. **cc 11¢ WF, 11½¢ PF, 11 PH. **dd up to 5 cy. **ee 5 cy & over. **ff 1½ to 3 T. **gg up to 5 T; 5 T & over, 2.22. **hh 5¢ H & WF ,2½¢ PF. **ii 4% VF **ik Incl. 1½¢ WF. **il Incl. 2% VF. **mm 10¢ H & WF, 10¢P, 5¢ VP. **oo Plus $2.25 wk. WF. **ss 5% WF, plus 6 PH. **tt 10¢ H & WF, 10¢ PF. **R revised

MEXICO CITY WAGES & PRICES

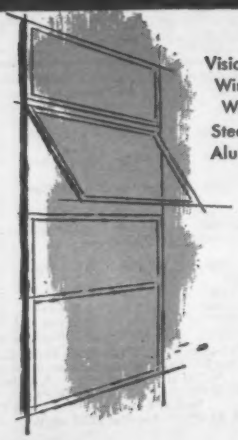
Wages, per 8 hr day, av per hr	Oct. '58	Nov. '58
Common labor, building (peons)	1.57	1.57
heavy const (peons)	2.00	2.00
Skilled labor, carpenters 1 cl	3.25	3.25
bricklayers 1 cl	2.87	2.87
struct. ironworkers	4.38	4.38

Pesos, F.o.b. City	Oct. '58	Nov. '58
Struct. steel shapes, fob Monterrey		
3"-15" x 12 meters, per metric ton	2400	2400
Reinf. steel, corrugated rods, per ton		
⅜"-1½" x 11 meters	1800	1800
¾"-1" x 11 meters	1750	1750

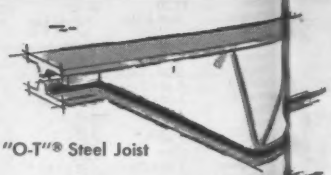
Gravel, truckload at 3½ cu meters	Oct. '58	Nov. '58
Blue gravel	84.00	84.00
Rose gravel	65.00	65.00
Cement, std. port. (Tolteca)	230.00	230.00
Lumber, 1" pine, per M ft.	1700.00	1700.00
1½" pine, per M ft.	1900.00	1900.00



Ferrobord® Steel Roofdeck
24 inches wide



Vision-Vent
Window
Walls—
Steel and
Aluminum



"O-T"® Steel Joist

Clere
Steel

TRUSCON
MARK OF MERIT
PRODUCTS

REPUBLIC
STEEL

...names you

ca

BUILD LOW-COST SCHOOLS THAT GO UP FAST WITH TRUSCON "GO-TOGETHER" PRODUCTS

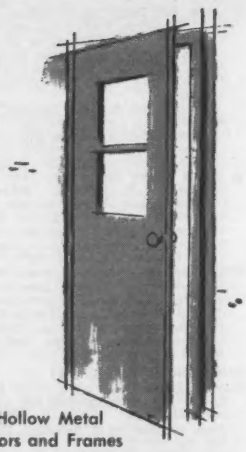
Here's an efficient type of construction which has been developed by architects working with Truscon to achieve low-cost school design. This special adaptation of standard Truscon products has the added advantage of fast school erection and occupancy.

This method lets you take advantage of the speed and economies of off-site construction. The flexible design is based upon your use of economical, readily available standard steel building products—Truscon Vision-Vent® Window Walls, Clerespan® and Open Truss Steel Joists, Ferrobord® Steeldeck Roofing, Truscon Steel Doors and Frames, Truscon Reinforcing Products.

As presently utilized, the design is flexible with the use of either a 9′ 0″ module or a 16′ 0″ module to allow best economy with Steel Joists and Ferrobord Roofdeck. Clerespan Joists and "O-T" Steel Joists are designed to meet local code requirements for loading conditions.

Simplified construction methods and modular design provide a permanent high-quality building that will be an asset to any community. This is Class A construction using fire-safe materials. Vision-Vent panels can be in the color of your choice. Expansion possibilities protect against obsolescence.

Truscon will be happy to work with school officials, architects, and builders in varying the basic concept to meet local traditions and customs.



Hollow Metal Doors and Frames

can build on

REPUBLIC STEEL
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Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲† **Mass., Chicopee Falls**—AIRMEN'S SERVICE CLUB, etc.—BA On Or About 12/9—U. S. Eng., 424 Trapelo Rd., Waltham 54, Mass., constr. airmen's service club and armament and electronics shop, Westover Air Force Base, ENG-19-016-59-54. $1,000,000-$1,250,000. Plans deposit $25. CD 3/12

▲† **Mass., Falmouth**—AIRMEN DORMITORIES—BA On Or About 12/18—U. S. Eng., 424 Trapelo Rd., Waltham, Zone 54, (1) four 3 story, 41 x 205 ft. airmen dormitories incl. plumbing, heating, ventilating and electrical work, (2) site work (3) exterior utilities, incl. water lines, sanitary sewers, storm drains, etc. (4) b. conc. walks; (5) topsoiling, etc (6) plumbing, heating and electrical work in utility room of adjacent Airmens Dining Hall, Otis Air Force Base, ENG-19-016-59-55. $1,250,000-$1,500,000. Plans deposit $10. CD 9/9.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 11/13,
Daniel O'Connell's Sons, Inc., 480 Hampden St., Holyoke, Mass., LB $3,594,367, est. $3,546,812, Interstate Hy. Rte. 91, I-IN-91-1(2), Longmeadow-Springfield. CD 11/6.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **N. Y., Bath**—HOSPITAL—BA 12/10—Ira Davenport Memorial Hospital, Inc., Bd. Trustees, East Steuben St. Proj. NYS-171-hospital, Pulteney Square. $1,300,-000. Plans deposit $100. James H. Ritchie & Assoc., 315 Clarendon St., Boston, Mass., archts. Nichols, Norton & Zaldastani, 285 Columbus Ave., Boston, Mass., engrs. CD 7/19/56, under Public Buildings.
▲ **Del., Dover** — HEADQUARTERS-LABORATORY — BA 12/16—State Bd. Health at office of Albert Kruse, archt. 1116 West St., Wilmington, 3 story, headquarters-laboratory, Federal and D Sts. $2,300,000. CD 10/2/57.
▲ **Del., Wilmington**—RETIREMENT HOME—Bids Asked Peninsula Conference of the Methodist Church, 6 and Washington, retirement home for senior citizens, Kennett Pike. $2,000,000. Dollar, Bonner, Blake & Manning, 110 Madison St., archts. CD 5/16.

HEAVY CONSTRUCTION—LB & CA

Link Belt Co., Colmar, Pa., LB $820,803, furnishing, deli. f.o.b. destination Niagara Falls, 2,300 tons embedded structural steel towers, guides, etc. for Tuscarora Power Plant, Niagara Falls, Niagara Co., Spec. No. PA-N-23015, Niagara Contr. No. NP 28, NEW YORK. Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y. Bids Nov. 13. CD 10/17.
▲ **NEW JERSEY**—State Hy. Dpt., Kenneth D. Rice, secy., 1035 Parkway Ave., Trenton. Bids opened 11/12,
N. J.—A. J. Cunningham & Sons, 2850 Brunswick Pike, Trenton, N. J., LB $870,276, (3 bidders), wid'n., resurf. 2.908 mi. Rte. U.S. 1 (1953), Sect. 3, from ¾ mi. South of Alexander Road to State Police Barracks, West Windsor and Plainsboro Twps., Fed. Proj. No. DF-95(35), Mercer and Middlesex Counties;
N. J.—The Union Paving Co., Wynnewood, Pa., LB $749,808, (5 bidders), wid'n., resurf. 3.994 mi. Rte. U.S. 30 (1953), Sect. 2, from Wellington to Bell Aves., Boroughs of Stratford, Somerdale, Magnolia, Lawnside and Barrington, Fed. Proj. No. DU-41(5), Camden Co.;
N. J.—Thomas Nicol Co., Hamilton Rd., Farmingdale, N. J., LB $723,278, (9 bidders), dualization 1.273 mi. Rte. U.S. 202 (1953), Sect. 3, from Huyler Rd. to 700 ft. East of the Central RR of New Jersey, Branchburg and Bridgewater Twps., Fed. Proj. No. DF-109(12), Somerset Co. CD 10/24.
▲ **NEW JERSEY**—State Hy. Dpt., Kenneth D. Rice, secy., 1035 Parkway Ave., Trenton, Bids opened 11/13,
The Yonkers Contg. Co., 969 Midland Ave., Yonkers, N. Y., LB $6,379,961 (11 bidders) grading, drainage, constr. 5 bridges for 4.8 mi. of future Interstate Rte. 78 through the Jugtown Mountain area, west of Clinton, Hunterdon Co. CD 10/20.
▲ **Tibbetts Constr. Co.**, 1 Lawton Ave., Yonkers, N. Y., CA $3,324,560, est. $4,000,000 (2 bidders), general contract, sewerage sys. exten., NORTH BERGEN, N. J. Twp. of North Bergen, Municipal Bldg., North Bergen, N. J. Bids Sept. 17. CD 9/26, under LB.
▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,
Lycoming Constr. Co., 127 Susquehanna St., Williamsport, Pa., CA $3,489,999, 24,850 ft. c. conc., 24 ft. wide each side 60 ft. earth divisor, 2 alt. superstructure bridges, Sec. Scranton-Binghampton Thruway, (Proj. 820-2), FAI, Hartford and New Milford Twps., Susquehanna Co. Bids Sept. 25. CD 9/30, under LB.

BUILDINGS—LB & CA

▲ **Louis Cahan & Co.**, 134 W. State St., Trenton, N. J., Owner Builds, $1,000,000, 96 unit APARTMENT, Lower Ferry Rd., Ewing Twp., TRENTON, N. J.
▲ **William A. Berbusse, Jr., Inc.**, 101 Park Ave., New York 17, N. Y., CA $1,063,000, HOSPITAL WING, VINELAND, N. J. Newcomb Hospital, Vineland, N. J. Bids 11-6. CD 10/20.
▲ **Leimbach Constr. Corp.**, 3906 Hickory Ave., Baltimore, Md., LB $2,897,350 (7 bidders) Westport HOMES extension, Job MD-2-13, BALTIMORE, MD. City Housing Auth., 709 E. Eager St., Baltimore 2, Md. Bids Nov. 13. CD 10/28.
▲ **Park Towers, Inc.**, c/o 933 Mathieson Bldg., Baltimore 2, Md., Separate Contracts, $1,300,000, 9 story, 70 x 260 ft.-85 x 87 ft. air-conditioned APARTMENT, BALTIMORE, MD. Leavitt Assoc., 4400 Cooly Ave., Norfolk, Va., archts.-engrs.
John Tester & Son, Clinton, Md., CA $816,849, Palmer Park JUNIOR HIGH SCHOOL addn., Lanham, MARLBORO, MD. Prince George's Co. Bd. Educ., Marlboro, Md. Bids Nov. 3. CD 11/10, under LB.
▲ **John McShain, Inc.**, 1500 Arlington Ridge Rd., Arlington, Va., CA $2,000,000, 13 story, brick, steel, concrete, stone OFFICE BUILDING, STORE and THEATRE, 725 14 St. N.W., WASH., D. C. 14 and H Street Corp., 1500 Arlington Ridge Rd., Arlington, Va. Edwin Weihe, 810 18 St. N.W., Wash., D. C., archt.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲† **Nello L. Teer Co.**, P.O. Box 1131, Durham, N. C. CA $1,379,871, operational alert apron Seymour Johnson Air Force Base, ENG-31-075-59-8, GOLDSBORO, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. CD 10/30, under LB.
▲ **FLORIDA**—State Rd. Dpt., Tallahassee,
Paul Slusher & Wiley N. Jackson Co., Box 1408, Roanoke, Va., CA $2,570,339, 6 lane 9 in. c. conc. pvmnt. 6½ in. and 8½ in. limerock base with Type 1 c. conc. surf. course and binder course, drainage structures, four dual concrete slab deck grade separation bridges with prestressed beams on concrete piers founded on prestressed concrete piling (dual length of structures is 897.7 ft.) a pedestrain overpass, aluminum handrail, lighting, fencing, removal bidgs., etc., 1.4 mi. SR 400 between 27 St. and America St. in Orlando, FAI Proj. No. I-4-2 (12) 99, Job No. 75280-3416,

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West
PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

Orange Co. Bids Oct. 28, awarded Nov. 12. CD 10/31, under LB.

BUILDINGS—LB & CA

▲ **Robert L. Turchin, Inc.**, 1835 Purdy Ave., Miami Beach, Fla., CA $7,000,000, 14 story Southgate HOTEL and APARTMENTS, MIAMI BEACH, FLA. Nathan S. Gumenick, 420 Lincoln Rd., Miami Beach, Fla. D. E. Britt & Assocs., 1766 Bay Rd., Miami Beach, Fla., structural engrs. Sasnett Engineering, Inc., Dupont Plaza, Miami Beach, Fla., mechanical engr. Bids Oct. 16. CD 11/11, under LB.
▲ **Meadow Corp.**, 10 W. Pattern Ave., Montgomery, Ala., Owner Builds, $4,000,000, 364 HOMES, Mc Rocky Ridge, S. of Old U. S. Hy. 31, BIRMINGHAM, ALA.
▲ **Meadow Corp.**, 10 W. Pattern Ave., Montgomery, Ala., Owner Builds, $6,000,000, 600 HOMES, in Fultondale area, FULTONDALE, ALA.
▲ **R. P. Farnsworth & Co., Inc.**, Box 815, New Orleans, La., CA Est. $2,000,000, 14 story, bsmnt., 1,000,000 sq. ft. steel, glass and marble OFFICE, NEW ORLEANS, LA. Shepard M. Latter, 919 Gravier St., New Orleans, La. Aug. Perez & Assocs., 314 Audubon Bldg., New Orleans, La., and Ed. B. Silverstein & Assocs., 302 Magazine St., New Orleans, La., archts. A. W. Thompson & Assocs., 635 Comm. Pl., New Orleans, La., structural engrs. Alfred R. Salzer, 930 Bienville St., New Orleans, La., electrical engr. CD 6/25.

MIDDLE WEST

▲ **Ill., Evergreen Park**—HOSPITAL—BA 12/2—Evangelical Hospital, 5421 S. Morgan St., Chicago, 4 story Christ Community Hospital, 95 St. and Kilbourne Ave. $5,000,000. Burnham & Hammond, 53 W. Jackson Blvd., Chicago, archts. CD 8/8/56.
▲ **Ill., Jacksonville**—ELECTRIC DISTRIBUTION LINES—BA 12/2—City, City Hall, electric distr. sys. $1,000,000, Burns & McDonnell, 95 & Troost Sts., Kansas City, Mo., engrs. CD 9/24.
▲ **Ill., Charleston**—BA 12/3—City, City Hall, sewerage imprvs., Div. D, E, F, G, H & I, $1,100,000. Warren & Van Praag, Inc., 253 S. Park Ave., Decatur, engr. CD 11/30/56.
▲ **Ind., Hammond**—SCHOOL, etc.—BA 12/8—City, 5935 Hohman Ave., 2 story, brick Donald E Gavit High School and gymnasium, 175th and Northcott Sts. $2,500,000. Besozzi Carpenter & Ignelzi, 7501 Indianapolis Blvd., archts. CD 3/8/57.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—Launder & Son, Inc., Station E, Box 6, Toledo, O., CA $2,054,613, Proj. 552—Type T-35, T-71, 7.449 mi. and structures USR 33-11.50, USR-4.92 F-38 (1) ACI-196 (6) City of Wapakoneta, Auglaize Co. CD 11/6, under LB;
O.—National Engineering & Contracting Co., 1968 W. Third St., Cleveland, O., CA $2,493,102, Proj. 556—Type T-35 on B-70 0.289 mi. and structures, USR 42-18.77, ACI-1057 (9), City of Cleveland, Cuyahoga Co.;
O.—The General Asphalt Paving Co., 500 Main Court S.E., Canton, O., CA $1,380,615, Proj. 561—Type T-35 on B-219 3.375 mi. and structure, CR No. 122-A (pt.) DS-1206 (8) S-1206 (4) Village of Obetz, Franklin Co.;
O.—John Hill Contg. Co., Lexington, O. CA $208,178, Proj. 579—Type T-35 0.238 mi. and structure, SR 91-11.94 F-FG 662 (2) Village of Stow, Summit Co.;
O.—Bruns Coal Co., Inc., 330½ Market St., Zanesville, O., CA $3,555,676, Proj. 566—Type T-71 6.366 mi. USR 53-13.49, F-625 (9) Village of South Point, Lawrence Co.;
O.—Elmer Borchardt, Inc., Castalia, O., CA $88,533, est. $101,400. Proj. 576—Type T-35, b. conc. on waterbound macadam paving, wid'n and b. conc. resurf. 2.169 mi. CR No. 192 DS-1279 (1) Green Creek Twp. Grand total $9,780,709. CD 10/20.
▲ **Hunkin Conkey Constr. Co.**, 1740 E. 12 St., Cleveland, O. LB $1,172,663 (7 bidders) grade crossing elimination on W. 140 St. at rapid transit and N.Y.C. R.R. tracks wid'n. resurf. W. 140 St., between Lorain Ave. and Triskey Rd., CLEVELAND, O. Comrs. Cuyahoga Co., County Admin. Bldg., 1219 Ontario St., Cleveland 13, O. Bids Nov. 13. CD 10/20.
INDIANA—State Hy Comn., John Peters, chn., State House Annex, Indianapolis, Zone 4,
Contracting & Materials Co., 1235 Dodge Ave., Evanston, Ill., CA $904,175, est. $992,499, rein.-con. pavement bit. resurf. 17.15 mi. Contr. R-4546, Lake, Porter and Laporte Counties. Bids Aug. 26. CD 9/2, under LB.

BUILDINGS—LB & CA

Sam W. Emerson Co., 1836 Euclid Ave., Cleveland 15, O., CA Est. $700,000-$800,000 (6 bidders) 5 story HOSPITAL addn., alterations, CLEVELAND, O. St. Alexis Hospital, 5163 Broadway, Cleveland 2, O. Bids Oct. 22. CD 10/1.
▲ **Calumet Constr. Co.**, 1247 169 St., Hammond, Ind., CA $1,287,960, West Point Motor HOTEL, RESTAURANT, swimming pool, paving, 400 Calumet Ave., HAMMOND, IND. West Point Hotel, Inc., 8956 Revere Court, Munster, Ind., CD 10/1, under CA.

▲ Bauer Constr. Co., 3411 W. Hopkins St., Milwaukee, Wisc., LB $1,014,000, (5 bidders) general contract HIGH SCHOOL, MEQUON, WIS. Union High School Dist. No. 1, Box 521, Thiensville, Wis. Bids Nov. 11. CD 10/28.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲† Iowa, Sioux City—SAGE TECHNICAL FACILITIES —BA 12/23—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., sage technical facilities, Sioux City Air Force Base, ENG-25-066-59-37. $4,000,000-$5,000,000.

BUILDINGS—BA

▲ Tex., Austin — STUDENT UNION — BA 12/4 — University of Texas, c/o Main Admin. Bldg., 4 story, 80,000 sq. ft. concrete frame, student union addn. $1,250,000. Plans deposit $50. Golemon & Rolfe, 5100 Travis St., Houston, and Page, Southerland & Page, Box 855, Austin, assoc. archts. Walter P. Moore, 2 Pinedale St., Houston, engrs. CD 11/6.

▲ Minn., Osseo—SCHOOL—BA 12/16—Bd. Educ., 1 story elementary school. $1,200,000. Haarstick-Lundgren & Assocs., N. 212 First Nati. Bank Bldg., St. Paul, archts. CD 10/22.

HEAVY CONSTRUCTION—LB & CA

† Austin Bridge Co., 1813 Clarence St., Dallas, Tex. CA $928,135, 3 bridges for St. Louis, San Francisco Ry. relocation, Keystone Reservoir, ENG-34-066-59-12, OKLAHOMA. U. S. Eng., Box 61, Tulsa, Okla. CD 10/31, under LB.

▲ TEXAS—State Hy. Comn., Austin, Bids opened 11/12, Tex.—Henry L. Stafford, P. O. Box 1047, Lubbock, Tex. LB $82,630, grade, structures, base and surf. 7.738 mi. Hy. FM 213, Proj. S 2329 (1) Terry Co.; LB $262,951, flex. base, etc. 8.997 mi. Hy. SH 70. Proj. S 53 (12) Donley Co. CD 10/27; LB $488,552, grade, structures, etc. 13.755 mi. Proj. S 683 (4) Andrews Co. CD 10/23;

Tex.—J. R. Fanning, P. O. Box 1278, Lubbock, Tex. LB $309,712, flex. base, shoulders, etc. 14.974 mi. Hy. US 82 and 287. Proj. F 448 (6) Wichita and Clay Counties;

Tex.—R. W. McKinney, Box 190, Nacogdoches, Tex. LB $623,610, respective widen grading, etc. 8.495 mi. Hy. US 84. Proj. F 265 (5) McLennan Co.;

Tex.—J. M. Dellinger, Inc. & Allen Keller Co., Box 4227, Corpus Christi, Tex. LB $1,074,253, grade, etc. 12.295 mi. Hy. US 281. Proj. F. 723 (5) Burnet Co., all foregoing. CD 10/23.

▲ TEXAS—State Hy. Comn., Austin, Bids opened 11/13, Tex.—Ray Boswell, P. O. Box 537, Pampa, Tex., LB $272,455, grade, etc. 5.122 mi. Hy. SH 51 & FM 809. Proj. S 54 (3) & C 801-2-5, Deaf Smith Co.; LB $346,814, grade, widen structures, etc. 10.623 mi. Hy. SH 152, Proj. F 1020 (3) & F 1020 (4) Hutchinson Co.;

Tex.—Austin-Worth Contr. Co., P.O. Box 531, Fort Worth, Tex., LB $276,379, 1 hot mix b. conc., etc. 15.616 mi. Hy. US 59. Proj. F 326 (6) & F 512 (27) Fort Bend and Harris Counties;

Tex.—W. O. Pelphrey, P. O. Box 1157, Fort Worth, Tex., LB $295,611, widen, base, etc. 8.236 mi. Hy. US 674 & 84. Proj. F 583 (14) Brown Co., all foregoing. CD 11/5;

Tex.—M. E. Ruby & D. B. Denney, Jr., Box 96, San Marcos, Tex., LB $2,587,979, grade, etc. 4.609 mi. Hy. IH 35 and US 79, Proj. I 35-3 (4) 252 & F 427 (6) Williamson Co.;

Tex.—Harry Campbell, Rte. 5, Box 68-A, Fort Worth, Tex., LB $281,657, grade, etc. 5.195 mi. Hy. US 281 Proj. F 743 (5) Jack Co.;

Tex.—Ivan Dement, P.O. Box 1787, Amarillo, Tex. LB $278,872. grade, etc. 4.574 mi. Hy. SH 15. Loop 140, etc. Proj. C 356-1-47, etc. Hutchinson Co., all foregoing. CD 10/23.

▲ COLORADO—State Hy. Dpt., 4201 East Arkansas, Denver,

Colo.—Peter Kiewit Sons Co., 1950 South Colorado Blvd., Denver, Colo., CA $1,606,165 est. $1,634,000 c. conc. 3.962 mi. Colo. Proj. No. I-80S-1(9) 59, Morgan Co.;

Colo.—H-E Lowdermilk, Inc., 1950 West Dartmouth, Englewood, Colo., CA $345,105, est. $356,000, plant mixed asph. surf. 2.557 mi. Colo. Proj. No. S 0098 (2), Jefferson Co.;

Colo.—Western Paving Constr. Co., 5105 North Washington St., Denver, Colo., CA $354,658, est. $410,000, plant mixed asph., surf. 3.511 mi. Colo Proj. No. DU S 0075(3) Denver and Jefferson Counties. Grand total $2,305,928. Bids Nov. 14. CD 11/6.

▲ Thomas Bate & Sons, 2310 10 St., Denver, Colo., LB $1,089,944, Hillcrest Reservoir, DENVER, COLO., Bd. Water Comrs., 144 W. Colfax Ave., Denver, Colo. Bids Nov. 12. CD 10/28.

BUILDINGS—LB & CA

▲ L. C. Halvorsen Co. & Watson Constr. Co., 1409 Willow St., Minneapolis, Minn., (joint venture) LB $2,585,000 (12 bidders), general constr. CENTRAL LIBRARY, incl. 4 story, 154 x 254 ft. with 1 story 69 x 159 ft. penthouse, 1 story section 148 x 159 ft. base, sub-base, etc. between Hennepin and Nicollet Aves. and Third and Fourth Sts., MINNEAPOLIS, MINN. City, Library Bd., 1001 Hennepin Ave., Minneapolis, Minn. Bids Nov. 14, CD 10/14.

Belden Porter Co., 65 North 17th St., Minneapolis, Minn., LB $905,866 (10 bidders), mechanical work for Central Library (Minneapolis, Minn.);

Langford Electric Corp., 422 Roosevelt St. N.E., Minneapolis, Minn., LB $448,600 (8 bidders), electrical work for Central Library (Minneapolis, Minn.).

▲† B. H. Baker Constr. Co., 2605 North Circle Dr., Colorado Springs, Colo., CA $3,400,000 HOSPITAL, Air Force Academy, 05-613-58-49, COLORADO

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SPRINGS, COLO. Dpt. Air Force Box 1670, Colorado Springs, Colo. Bids Sept. 9. CD 10/28.

▲ **J. & K. Constr. Co.**, 845 Decatur, Denver, Colo., CA Approx. $1,000,000, 1 story, 60,000 sq. ft. SHOPPING CENTER (first phase) parking for 500 cars, West 38 and Wadsworth, WHEAT RIDGE, COLO. Ambrose-Williams & Co., 1740 Broadway, Denver, Colo. Fisher, Fisher & Carls, 827 Denver National Bank, Denver, Colo., archts.

FAR WEST

HEAVY CONSTRUCTION—LB & CA

▲† **Ferry Bros.**, 5201 San Fernando Rd., Glendale, Calif. CA $1,149,142. constr. 11 mi. levees and other flood control on Middle Creek levee sys., Spec. 2491, ENG-04-167-59-22, Lake Co., CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids Nov. 6, awarded Nov. 12. CD 11/12, under LB.

BUILDINGS—LB & CA

▲ **James I. Barnes Constr. Co.**, 1940 Spring St., Redwood City, Calif. CA $1,844,000. general constr. 5 story 158,000 sq. ft. floor space STATE OFFICE BLDG. and adjoining 2 story rein.-con. about 45,000 sq. ft. floor space parking facility, W. O. 3848GC-4, FRESNO, CALIF. State Div. Architecture, 1120 N. St., Sacramento, Calif. Bids Oct. 28, awarded Nov. 12. CD 11/3, under LB;
Gillett Plumbing & Heating Co., Inc., 1719 L St., Fresno, Calif. CA $638,000, combined mechanical work for office bldg. (Fresno, Calif).

▲ **James Stewart Co.**, 3911 Pacific Hy., San Diego, Calif. LB $1,352,598, Base Bid (11 bidders), constr. LABORATORY BLDG. Unit 3, LA JOLLA, CALIF. University of California, at Scripps, La Jolla, Calif. Bids Nov. 13. CD 5/16.

Fellows & Assocs., 576 W. Ave. 26, Los Angeles, Calif. LB $937,000 (12 bidders), Base Bid, constr. BUSINESS EDUCATION BLDG., SOCIAL SCIENCE BLDG., LIBRARY and LANGUAGE ARTS BLDG., Alta Loma, ONTARIO, CALIF. Chaffey Junior College Dist., 1245 N. Euclid Ave., Ontario, Calif. Bids Nov. 13. CD 10/28.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **W. C. Wells Constr. Co., Ltd.**, 140 Avenue F North and 23 St., Saskatoon, Sask., CA $1,850,000. 4 story, steel, glass, brick airport terminal bldg., REGINA, SASK. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Awarded Nov. 14. CD 11/14, under LB.

BUILDINGS—LB & CA

▲ **Principal Investments Ltd.**, 133 Richmond St. W., Toronto, Ont. Owner Builds.$1,500,000, 10 story, bsmnt., 102x126 ft., poured fdn. and caissons, structural steel frame, stone, glass, brick, etc. OFFICE BLDG., TORONTO, ONT.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **Refinery Engineering Co.**, 108 N. Trenton, Tulsa, Okla. CA $3,500,000, 2,500 bbl. REFINERY, CIENFUEGOS, CUBA. Transporte Reca, S. A. Cienfuegos and Havana, Cuba.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Conn., Waterbury**—City, City Hall, dam and reservoir, West Branch of Shepaug River, dam 1,100 ft. long, to impound 2 billion gals., Litchfield. $1,600,000. Malcolm Pirnie Engineers, 25 W. 43 St., New York, N. Y., consult. engrs. Henry C. Whitlock, city engr., CD 1/16.

▲ **Md., Baltimore**—Mayor & City Council, City Hall, Baltimore, voted bonds Nov. 4, constr., reconstr. and enlargement water supply sys., tunnel at Ashburton Reservoir to southwest city and imprvs. to district sys. $7,500,000. CD 10/27.

▲ **Minn., St. Paul**—City, City Hall, voted $10,000,000 bonds Nov. 4, water supply expansion. CD 10/23.

▲ **N. J., Belmar**—Wall Twp., Twp. Hall, water supply sys., incl. drilling artesian wells in Imperial Park and West Belmar Sections, laying mains in Highview Park, Manasquan Shore and West Belmar sections of Twp., 500,000 gal. tank. $1,180,000. Claude W. Birdsall, 1700 F St., engr.

▲ **Pa., Phila.**—Dpt. Procurement, City Hall Annex, approved $5,700,000 loan for WW imprvs. CD 3/22/46.

▲ **Tex., Brady**—City, City Hall, lake for domestic water supply $2,123,000; water main from lake $250,000; moving section of Santa Fe Ry. road bed—acct. lake $590,000.

▲ **Tex., Coleman**—City, City Hall, lake and dam on Jim Ned Creek. $1,844,000. Forrest & Cotton, 600 Vaughn Bldg., Dallas, consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Calif., Los Angeles**—Los Angeles County Flood Control Dist., 2250 Alcazar St., voted $225,000,000 bonds Nov. 4, storm drain improvs. CD 10/27.

▲ **Ill., Quincy**—City, City Hall, voted bonds Oct. 21, revamp and extend city's sewerage sys. $6,810,000. Warren & Van Praag, 2533 S. Park, Decatur, consult. engrs. CD 4/18/46.

▲ **Md., Baltimore**—Mayor & City Council, City Hall, Baltimore, voted bonds Nov. 4, imprvs., addns. to sanitary sewers and storm water drains. $2,500,000. CD 10/27.

▲ **Mich., Ecorse**—City, City Hall, defeated $3,894,000 bonds Nov. 4, sewerage sys., constr. lift station. CD 10/7.

▲ **Mont., Butte**—Metro Sanitary & Storm Sewer Dist. No. 1, sanitary and storm sewers. $3,055,000.

▲ **Neb., Omaha**—City, City Hall, voted $8,400,000 bonds Nov. 4, Minnelasa relief sewer $2,500,000. South Omaha Treatment plant and south interceptor sewer $600,000; interceptor line to connect Ralston and S.W. Omaha to 61st and Harrison Sts., disposal plant $400,000. Y St. relief sewer between 26 and 30th Sts. $400,000. Saddle Creek relief sewer $2,000,000. CD 8/14.

▲ **O., Avon Lake**—Village, Village Hall, voted bonds Nov. 4 for first portion of village sewerage sys. (total est. $5,994,700) $2,750,000. Finkeiner, Pettis & Strout, 518 Jefferson St., Toledo, consult. engrs. CD 7/10.

▲ **O., Bowling Green**—City, Mayor Clarence Dick, City Hall, defeated $800,000 bonds Nov. 4, sewer line imprvs. $1,600,000. CD 8/18.

▲ **O., Elyria**—City, City Hall, defeated bonds Nov. 4, sanitary sewer trunk line extens., imprvs. $1,681,000. CD 6/25.

▲ **O., North Olmstead**—Village, Village Hall, Dover Center Rd., defeated bonds Nov. 4, sewage plant and constr. sewers. $6,433,000. Floyd G. Browne & Assoc., 125 W. Church St., Marion, consult. engrs. CD 7/24.

▲ **O., Struthers**—City, City Hall, voted bonds Nov. 4, sewerage plant, sewers and pumping station. $1,200,000. Floyd G. Browne & Assoc., 125 W. Church St., Marion, consult. engrs. CD 6/26.

▲ **Pa., Phila.**—Dpt. Procurement, City Hall Annex, approved $6,600,000 loan for sewerage constr. CD 5/21.

▲ **Wash., Bellevue**—Eastgate Sewer Dist., defeated $3,500,000 bonds Nov. 4, sewer district in area southeast of here. Hill & Ingman, 3104 Western Ave., Seattle, consult. engrs. CD 10/24.

▲ **Wash., Seattle**—City, County-City Bldg., Seattle, Zone 4, interceptor sewers, pumping station and treatment plant, storm and sanitary sewers, parallel trunk sewers and holding tanks along Lake Washington, relief, sanitary and combined lateral and trunk sewers throughout the city. $18,000,000. Brown & Caldwell, 66 Mint St., San Francisco, Calif., consult. engrs. CD 4/11.

▲ **Ont., Galt**—City, City Hall, sewage replacement program, incl. 30 and 36 in. trunk sewer. $1,407,600. Proctor & Redfern, 75 Eglinton Ave. E., Toronto, consult. engrs. CD 10/22/57.

BRIDGES

▲ **O., Akron**—City, Leo Walter, service dir., City Hall, bridge over Pennsylvania and B. & O. tracks. $3,000,000. Iver Schmidt, city hy. engr.

▲ **Ore., Portland**—Multnomah Co., Courthouse, defeated bonds Nov. 4, Ross Island Bridge over Willamette River. $7,000,000. CD 9/18.

▲ **Wash., Seattle**—City, County-City Bldg., grade separation at south end of Ballard bridge and overpass at 15th Ave. W. and W. Dravus St. $1,300,000. R. W. Morse, city engr. Bids expected in March. CD 9/12/56.

▲ **Wash., Yakima**—City, City Hall, defeated bonds Nov. 4, overpass on W. Lenox Ave. to 16 Ave., $246,000; overpass on C St., $730,000; overpass on C St. to 16 Ave., $111,500; improve C St. from 1 St. to Yakima Ave., $108,000. S. H. Hobbs, city engr. CD 9/11.

▲ **SASKATCHEWAN** — Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. and Province of Saskatchewan, Parliament Bldgs., Regina,
Prince Albert—four lane bridge across North Saskatchewan River. $2,500,000. CD 4/11/52.

STREETS AND ROADS

▲† **ALASKA**—Alaska Hy. & P. Wks. Dpt., Juneau,
Northway—base and surf. treat Alaska Hy. to complete surf. from Mile 1257, 7 mi. east of Northway to Mile 1292, $1,150,000.
Paxson—grading, crushed gravel surf. 18 mi. Denali Hy. Paxson to Tangle Lakes, $800,000.

▲ **Ark., Little Rock**—City, City Hall, voted $1,350,000 bonds Nov. 4, street imprvs., drainage and traffic signals.

▲ **Minn., Red Wing**—Goodhue Co., voted $1,000,000 bonds Nov. 4, two-year program of blacktopping roads, and bridges. CD 10/23.

▲ **O., Akron**—City, City Hall, Six Year Program, construct downtown inner loop utilizing High, Howard Water and Cedar St., $5,000,000;
wid'n. and resurf. Archwood Ave. from Arlington St. to Seiberling St. $200,000;
wid'n. and resurf. Brittain Rd. from Tallmadge Ave. to north city limits. $250,000;
wid'n. and resurf. Brittain Rd. from E. Market St. to Six Corners, $250,000;
wid'n. and resurf. Cuyahoga St., Uhler Ave. to Sachett St., $200,000;
extend Garman Rd. and pave Portage Path to Pershing Dr., $350,000;
extend and pave Good Park Blvd., from Dalia Ave. to expressway, $250,000;
wid'n. and resurf. Hawkins Ave. from Peckham St. to Wooster Ave., $250,000;
pave Hilbish Ave. from Market St. to Rt. 224, $270,000;
extend and pave Lovers Lane from Brown St. to Grant St., $250,000;
wid'n. and resurf. N. Portage Path from Tallmadge Hy. to Merridge Rd., $200,000;
open and pave Hy. Washington St. from Exchange St. to Expressway, $600,000.

▲ **O., Cleveland**—Comrs. Cuyahoga Co., Court House, Zone 13, voted bonds roads and expressways, $10,000,000.

▲ **O., Dayton**—City, City Hall, voted bonds expressways, $10,000,000.

▲ **O., Lorain**—City, City Hall, defeated bonds Nov. 4, street imprvs. $1,800,000. CD 7/23.

▲ **Pa., Erie**—City, City Hall, voted $2,000,000 bonds Nov. 4, street imprvs. CD 11/8/54.

▲ **TENNESSEE**—State Hy. Dpt., Nashville,
Knox Co.—constr. downtown loop in Knoxville FAI $10,000,000. Constr. approx. Apr. 1.

▲ **TEXAS**—State Hy. Comn., Austin,
Angelina Co.—secondary road near Lufkin $1,448,000.
Bexar Co.—80.3 mi. secondary roads, San Antonio $1,404,600.
Brazos Co.—70.3 mi. Brayn secondary roads. $1,668,000.
Brown Co.—91.1 mi. Brownwood secondary roads $2,222,000.
Cass Co.—33.3 mi. secondary road, Atlanta $1,674,000.
Childress Co.—111.8 mi. secondary road in Childress $1,873,000.
Dallas Co.—40.7 mi. secondary roads Dallas $1,478,500.
Ector Co.—46 mi. secondary roads near Odessa $927,000.
El Paso Co.—37.5 mi. secondary roads, El Paso $1,170,000.
Harris Co.—83.5 mile secondary road $2,982,000.
Hidalgo Co.—91.7 mi. road, Pharr $1,241,000.
Jefferson Co.—21 mi. secondary road in Beaumont $1,442,000.
Lamar Co.—63.6 mi. secondary hys. Paris $2,705,000.
Lavaca Co.—58 mi. near Yoakum $2,263,000.
Lubbock Co.—secondary roads near Lubbock $1,572,000.
McLennan Co.—secondary roads near Waco $2,400,000.
Nueces Co.—70.3 mi. Corpus Christi $1,041,000.
Potter Co.—secondary roads near Amarillo $1,427,600.
Scurry Co.—secondary road near Snyder $1,483,000.
Smith Co.—secondary road, Tyler. $1,533,000.
Tarrant Co.—49.8 mi. secondary hy. Fort Worth $1,761,000.
Taylor Co.—secondary roads near Abilene $2,187,000.
Travis Co.—77.5 mi. road at Austin Secondary $1,460,700.
Val Verde Co.—48.4 mi. secondary roads, Del Rio $739,600.
Wichita Co.—69.9 mi. secondary roads, Wichita Falls $1,329,000.

▲ **Tex., El Paso**—City, City Hall, street imprvs., paving $3,846,000. CD 1/11/57.

▲ **Tex., San Antonio**—Bexar County Comrs. Court, Prec. 3, Courthouse, defeated bonds Nov. 4 road constr., maintenance and imprvs. $2,170,000. CD 10/23.

▲ **NORTHWEST TERRITORIES**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.
Yellowknife—grading, gravelling abt. Mile 50 to Mile 90 and Mile 90 to Mile 138, gravelling Mile 0 to Mile 50, MacKenzie Hy. extens. to Yellowknife, via Fort Providence and Rae, Over $1,000,000.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., wid'n. Avenue Rd. between Bloor St. W. and St. Clair Ave. W. from four to six lanes. $2,900,000. CD 2/19/51.

EARTHWORK, WATERWAYS

▲ **Calif., Escondido**—City, City Hall, voted $1,550,000 bonds Nov. 4, drainage and flood control projs. CD 9/16.

▲ **Tex., El Paso**—City, flood control and drainage. $2,481,000.

LATIN AMERICA

▲ **Cuba, Soroa**—HOTEL, etc.—The Jack Tar Hotel, Jack Tar Hotel Bldg., Galveston, Tex. "Santa Anna Jack Tar" Hotel, 9 hole golf course, lake. $4,000,000.

PUERTO RICO

▲ **Puerto Rico, San Juan** — COLLEGE EXPANSION — Colegio Universitario Sagrado Corazon, parada 26½ Avenida Ponce de Leon, San Juan, college expansion program, incl. chapel and auditorium. $2,000,000.

▲ **Puerto Rico, San Juan**—GYMNASIUM—Universidad de Puerto Rico, Rio Piedras, gymnasium incl. swimming pool Rio Piedras campus, near here. $1,200,000.

U. S. POSSESSIONS

▲ **T. H., Honolulu**—APARTMENT—Robert W. Hendry, 3015 Kalakaua Ave., 12 story, 24 unit co-op. apartment, $1,000,000.

▲ **T. H., Honolulu**—Territory of Hawaii, c/o 465 So. King St., Zone 14, approach roads Wilson Tunnel. $2,719,627. J. M. Tanaka, Inc., 1058 Kalo St., consult. engr.

FOREIGN

▲† **U.S.S.R., Moscow**—EXHIBITION HALL—State Dpt., U. S. Govt., Wash., D. C., exhibition hall, $2,000,000-$3,000,000 (no appropriation).

PUBLIC BUILDINGS

▲ **Ark., Little Rock**—PUBLIC—City, City Hall, voted $1,000,000 bonds Nov. 4, public buildings. CD 10/3.

▲ **Calif., Alhambra**—SCHOOLS—Alhambra City School Dist., 601 N. Garfield Ave., voted $2,540,000 bonds Nov. 4, schools. CD 8/8/57.

▲ **Calif., Bakersfield**—AUDITORIUM—City, City Hall, voted $2,975,000 bonds Nov. 4, auditorium, Wright, Metcalf & Parsons, 2323 E. St., archts. CD 8/15.

▲ **Calif., Compton**—SCHOOLS—Compton Union High School Dist. voted **$3,800,000** bonds Oct. 21, schools. CD 10/3.

▲ **Calif., Covina**—SCHOOL—Covina Union High School Dist., 165 W. Dexter St., plans by Kistner, Wright & Wright, 1125 W. 6th St., Los Angeles Orange Merced High School Addns. **$1,200,000**; Charter Oak High School Addns. Increment No. 2. **$1,200,000.** $5,920,000 bonds voted Oct. 21. CD 10/6.

▲ **Calif., Los Angeles**—CLINIC FACILITIES—Bd. Supervs. Los Angeles Co., Hall of Records, defeated. $7,300,000 bonds Nov. 4, out patients clinic facilities, Bond Proposition D. CD 10/27.

▲ **Calif., Los Angeles**—HOSPITAL—Co. Bd. Supervs., Los Angeles Co., Hall of Records, voted **$2,444,000** bonds Nov. 4, tubercular segregation hospital and segregation unit, Bond Proposition C. CD 10/27.

▲ **Calif., Los Angeles**—JAIL FACILITIES—Bd. Supervs. Los Angeles Co., Hall of Records, defeated **$19,420,000** bonds Nov. 4, mens central jail facilities, Bond Proposition A. CD 10/27.

▲ **Calif., Los Angeles**—NURSES RESIDENCE—Bd. Supervs. Los Angeles Co., Hall of Records, defeated $4,052,000 bonds Nov. 4, hospital nurses residence, Bond Proposition E. CD 10/27.

▲ **Calif., Los Angeles**—PHYSICIAN HOUSING—Bd. Supervs. Los Angeles Co., Hall of Records, defeated $3,561,000 bonds Nov. 4, intern and resident physician housing, Bond Proposition F. CD 10/27.

▲ **Calif., Los Angeles**—WOMENS DETENTION—Bd. Supervs. Los Angeles Co., Hall of Records, defeated $6,202,000 bonds Nov. 4, womens detention bldg., Bond Proposition B. CD 10/27.

▲ **Calif., Oakland**—HEALTH DPT. BLDG.—Alameda Co., c/o Clerk, Courthouse, plans by Anderson, Hyde & Anderson, Bank of America Bldg., 5 story, 55,000 sq. ft. Co. Health Dpt. Bldg., Broadway and 4th St. $1,000,000. CD 11/27/57.

▲ **Calif., San Diego**—HOSPITAL—San Diego County Civic Center, voted bonds Nov. 4, hospital **$12,450,745.** CD 6/17.

▲ **Calif., San Francisco**—CIVIC AUDITORIUM—City and San Francisco Co., Dpt. P. Wks., City Hall, defeated $7,225,000 bonds Nov. 4, civic auditorium imprvs. CD 7/18/58.

▲ **Calif., San Francisco**—COURTS, etc.—City and San Francisco Co., Dpt. P. Wks., City Hall, defeated $22,150,000 bonds Nov. 4 to finance constr. courts bldg. and imprv. city hall. CD 7/18.

▲ **Calif., San Francisco**—FINE ARTS—City and San Francisco Co., Dpt. P. Wks., City Hall, defeated bonds, Nov. 4, reconstr. Palace of Fine Arts. **$3,600,000.** CD 8/21.

▲ **Calif., San Rafael**—HOSPITAL, etc.—Marin Co. Courthouse, defeated bonds Nov. 4, county hospital nursing home **$1,124,192**; new juvenile hall. **$420,000**; convert juvenile hall for ambulatory patients **$362,800**, near here. Eugene E. Crawford, 920 5th St., archt. Harold Engle, 1539 4th St., consult. engr. CD 10/6.

▲ **Conn., Hartford**—SCHOOL—City, City Hall, voted $2,200,000 bonds, elementary school. CD 1/31/57.

▲ **Ga., Atlanta**—NURSES' HOME—Fulton-DeKalb Co. Hospital Auth., 80 Butler St. S. W., plans by Percy H. Perkins Jr. & Assocs., 1368 W. Peachtree St. N. W., nurses' home, Grady Memorial Hospital, Piedmont Ave. and Armstrong St. S. E. **$1,000,000.**

▲ **Ill., Robinson**—HOSPITAL—Crawford Co. Hospital Bd., Court House, county hospital, **$1,500,000.** voted.

▲ **Iowa, Council Bluffs**—SCHOOL—Bd. Educ. Independent School Dist., plans by Leo A. Daly Co., Insurance Exchange Bldg., Omaha, Neb., brick, concrete West Side Junior High School, 21 St. and Ave. G, **$1,100,000.** CD 7/26/57.

▲ **Md., Baltimore**—ART GALLERY—Mayor & City Council, City Hall, Baltimore, defeated bonds Nov. 4, Walters Art Gallery enlargement, Charles St., Mt. Vernon Pl., Cathedral and Center Sts. **$9,000,000.** CD 10/27.

▲ **Md., Baltimore**—CIVIC CENTER—Mayor & City Council, City Hall, Baltimore, voted bonds Nov. 4, municipal civic center. **$6,000,000.** CD 10/27.

▲ **Md., Baltimore**—FIRE DEPARTMENT—Mayor & City Council, City Hall, Baltimore, voted bonds Nov. 4, fire department and modernization of present facilities. $5,000,000. CD 10/27.

▲ **Md., Baltimore**—HOSPITAL—Mayor & City Council, City Hall, Baltimore, voted bonds Nov. 4, hospital addn., 4900 Block Eastern Ave. **$3,500,000** CD 10/27.

▲ **Md., Baltimore**—POLICE DEPARTMENT—Mayor & City Council, City Hall, Baltimore, voted bonds Nov. 4, police department facilities. **$1,000,000.** CD 10/27.

▲ **Md., Baltimore**—SCHOOLS—Mayor & City Council, City Hall, Baltimore, voted bonds Nov. 4, schools. $5,000,000. CD 10/27.

▲ **Mass., Medfield**—SCHOOL—Town, Supt. Schools, plans by Howard L. Rich & Herman F. Tucker, 45 Newbury St., Boston, Mass., Junior-Senior High School. $1,500,000. Constr. 1959.

▲ **Minn., Duluth**—DISTRICT HEADQUARTERS—State Hy. Dpt., 1246 University Ave., St. Paul, plans by Melander, Fugelso & Assocs., 603 Walworth Bldg., 3 story, 86x98 ft. office, incl. 160x282 ft. storage section, 60x83 ft. attached wing for sign shop, paint spray booth, etc. Hy. 94 between Mesaba Ave. and 14th St. **$1,340,000.** Bids early spring. CD 1/7.

▲ **Minn., Hibbing**—SCHOOL—Bd. Educ., Independent School Dist. No. 701, plans by Jyring & Whiteman, Hibbing, Junior-College Bldg. **$1,250,000.**

▲ **Minn., St. Paul**—SCHOOLS—City, City Hall, defeated $20,500,000 bonds Nov. 4, school constr., school imprvs. incl. maintenance. CD 10/23.

▲ **Minn., Stillwater**—SCHOOL—Bd. Educ., $2,432,000 bond election Dec. 4, Senior High School, etc. $2,000,000. Hammel & Green, 1932½ University Ave., St. Paul, archts. CD 2/26.

▲ **Minn., West St. Paul**—SCHOOL—Bd. Educ., Independent School Dist. No. 197, **$1,960,800** bond election Dec. 9, Junior High School and acquiring sites for elementary school. Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, archts.

▲ **Minn., Winona**—COURT HOUSE—Winona Co., defeated **$1,000,000** bonds Nov. 4, court house. Fladsmith & Assocs., Younger Bldg., archts. CD 9/25.

▲ **Mo., St. Louis**—GARAGE—City, Bd. P. Service, 304 City Hall, Zone 3, plans by Eero Saarinen, W. Long Lake Dr., Detroit, Mich., multi-story, 2,000-car parking garage in Riverfront area south of Eads Bridge. **$2,000,000.** CD 4/12/56.

▲ **Mo., Waynesville**—HOSPITAL—Pulaski County Memorial Hospital, Court House, defeated $850,000 bonds Nov. 4, general county hospital near Dixon. **$1,425,000.** ($575,000 other funds available if bonds passed). CD 10/14.

▲ **Nev., Las Vegas** — CONVENTION CENTER — Clark County Fair & Recreation Bd., Courthouse, voted **$1,000,000** bonds convention hall. CD 10/14/57, under LB.

▲ **N. J., Clayton**—SCHOOL—Elk & Franklin Twps. Regional School Bd., plans by Micklewright & Mountford, Stuyvesant and Prospect Sts., Trenton, Regional Junior-Senior High School, **$1,750,000,** CD 10/23.

▲ **N. J., Lawrence Twp.**—DEPARTMENT OFFICE—State Dpt. Agriculture, 1 West State St., Trenton, department office bldg. on 10-acre tract on Brunswick Pike adjacent to State Motor Vehicle Inspection Station. **$1,500,000.**

▲ **N. J., Millville**—SCHOOL—Bd. Educ. defeated **$2,735,000** bonds Nov. 4, high school. CD 10/6.

▲† **N. Y., Ithaca**—CORE REACTOR—Cornell University, Ithaca, Cornell Dual Core Reactor, pooltype light water moderated reactor for research. Vitro Engineering Co., Div. Vitro Corp. of America, 261 Madison Ave., New York, N. Y., engrs. CD 5/31/56, under Commercial Buildings.

▲ **O., Akron**—SCHOOL—Springfield Twp. Bd. Educ., 2966 Sanitarium Rd., voted bonds Nov. 4, school. $1,280,000. CD 8/13.

▲ **O., Ashland**—SCHOOL—Bd. Educ., defeated bonds Nov. 4, high school addn. **$2,950,000.** CD 7/29.

▲ **O., Ashtabula**—SCHOOL—Saybrook Local School Dist., Depot Rd., defeated bonds Nov. 4, schools, **$1,333,500.** CD 7/22.

▲ **O., Berea**—SCHOOL—Bd. Educ., 390 Fair St., voted bonds Nov. 4, Junior High School. **$2,350,000.** CD 6/25.

▲ **O., Boardman**—SCHOOL—Bd. Educ., 7410 Market St., Youngstown, defeated bonds Nov. 4, schools **$2,100,000.** CD 9/2.

▲ **O., Brecksville**—SCHOOL—Bd. Educ., 8915 Highland Dr., voted bonds Nov. 4, high school. **$1,100,000.** Outcalf Guenthe & Assoc., 13124 Shaker Sq., Cleveland, Zone 20, archts. CD 9/23.

▲ **O., Brewster**—SCHOOL—Fairless Bd. Educ., defeated bonds Nov. 4, high school. **$1,350,000,** CD 5/21.

▲ **O., Canton**—SCHOOL—Perry Local School Dist., 13th St. S. E., defeated bonds Nov. 4 schools. **$1,500,000.** CD 8/13.

▲ **O., Canton**—SCHOOL—Plain Local School Dist. 3900 Frazer Ave. NW. defeated bonds, Nov. 4, school addns. **$2,180,000.** CD 10/21.

▲ **O., Cincinnati**—SCHOOLS—Bd. Educ., 608 McMillan St., voted **$12,000,000** bonds Nov. 4, schools. CD 7/22.

▲ **O., Cincinnati**—SCHOOL—Forest Hills School Dist., 7537 Beechmont St., voted bonds Nov. 4, high school, **$1,620,000.** Garriott & Becker, 2414 Grandview St., archts. CD 7/24.

▲ **O., Cincinnati**—SCHOOL—Montfort Heights Bd. Educ., W. Fork Rd., defeated bonds Nov. 4, Junior High School, Jessup Rd., **$1,250,000.** CD 10/4.

▲ **O., Cincinnati**—SCHOOL—Oak Hills School Dist., 3900 Race Rd., defeated bonds Nov. 4, 2 elementary school bldgs. **$1,500,000.** CD 8/18.

▲ **O., Cleveland**—MUNICIPAL COURT BLDG.—City, City Hall, Zone 14, defeated **$5,200,000** bonds Nov. 4, municipal courts bldg., E. 18th and Payne Ave. CD 3/20.

▲ **O., Cleveland**—COURT HOUSE—Comrs. Cuyahoga Co., Court House, defeated bonds Nov. 4, remodeling old Lakeside Court House, Juvenile Court Bldg. courtrooms, **$1,645,000.** CD 7/22.

▲ **O., Cleveland**—EXHIBITION HALL—City, City Hall, defeated bonds Nov. 4, exhibition hall. **$15,000,000.** CD 7/24.

▲ **O., Cleveland**—HOME—Comrs. Cuyahoga Co., Court House, voted bonds Nov. 4, county nursing home imprvs. **$1,500,000.** Milo S. Holstein, 1030 Euclid Ave., archt. CD 7/22.

▲ **O., Cleveland** — HUDSON BOYS FARM — Comrs. Cuyahoga Co. Courthouse, voted bonds Nov. 4, imprvs. to Hudson Boys Farm, **$1,575,000.** CD 8/7.

▲ **O., Cleveland**—SCHOOL—Comrs. Cuyahoga Co. Court House, voted bonds Nov. 4, Blossom Hill Girls School, Brecksville, **$1,325,000.** CD 8/18.

▲ **O., Coshocton**—SCHOOL—Three Rivers Bd. Educ., Coshocton, voted **$1,300,000** bonds Nov. 4, high school, and school addns. CD 7/21.

▲ **O., Cuyahoga Falls**—SCHOOLS—Bd. Educ. voted bonds Nov. 4, high school addn., 3 grade schools, **$5,350,000. (Correction—status).** CD 11/10.

▲ **O., Elyria**—SCHOOL—Elyria Bd. Educ., voted bonds Nov. 4, school addns. $1,856,093, CD 7/24.

▲ **O., Fairfield**—SCHOOL—Bd. Educ., 5050 Dixie Hy., defeated bonds, Nov. 4, high school, **$1,493,500.** Winkler, Ranck & Beeghley, First National Bank Bldg., Hamilton, archts. CD 6/25.

▲ **O., Fairfield**—SCHOOL—Bd. Educ., 5050 Dixie Hy., voted bonds Nov. 4, high school, **$1,600,000.** Winkler, Ranck & Beeghley, First National Bank Bldg., Hamilton, archts. CD 6/25.

▲ **O., Fairview Park**—SCHOOL—Fairview Park Bd. Educ. 4407 W. 213 St., Cleveland, voted bonds, Nov. 4, high school, **$1,600,000.** Winkler, Ranck & Beeghley, First National Bank Bldg., Hamilton, archts. (correction—location of project) CD 11/10, under O., Fairfield.

▲ **O., Garfield Heights**—SCHOOLS—Bd. Educ., 4900 Turney Rd., defeated **$2,035,000** bonds Nov. 4, schools, CD 6/24.

▲ **O., Greenville**—SCHOOL—Bd. Educ., defeated bonds Nov. 4, Junior High School. **$1,975,000.** CD 7/29.

▲ **O., Jefferson**—COURT HOUSE—Comrs. Astabula Co., Court House, defeated **$2,900,000** bonds Nov. 4, county courthouse. Fulton DelaMotte & Assocs., 6014 Euclid Ave., Cleveland, archts. CD 7/21.

▲ **O., Lakewood** — SCHOOL — Bd. Educ., 1470 Warren Rd., voted bonds Nov. 4, school rehabilitations and addns. $2,600,000. CD 7/24.

▲ **O., Mansfield**—SCHOOLS—School Dist., voted bonds Nov. 4, 2½ mill. levy for 5 years, schools. $1,890,000. CD 11/5/54.

▲ **O., Marlboro**—(P. O. Alliance)—SCHOOL—Marlington Bd. Educ., Local School Dist., voted bonds schools. $1,370,000.

▲ **O., Massillon**—SCHOOLS—Bd. Educ., Little Tuslaw School Dist., voted bonds, high school. **$1,110,000.** CD 5/12.

▲ **O., Massillon**—SCHOOLS—Massillon Bd. Educ., defeated bonds school addns. **$1,750,000.** CD 7/10.

▲ **O., Mayfield**—SCHOOL—Bd. Educ., S.O.M. Center Rd., voted bonds Nov. 4, school sites and bldg. **$1,000,000.** CD 8/14.

▲ **O., Medina**—SCHOOL—Cloverleaf School Dist., Medina, voted bonds Nov. 4, high school. **$1,500,000.** CD 7/23.

▲ **O., Mt. Healthy**—SCHOOL—Mt. Healthy School Dist., Compton Rd., voted bonds Nov. 4, school. **$1,510,000.** CD 7/30.

▲ **O., New Lexington**—HOSPITAL—Comrs. Perry Co., Courthouse, defeated bonds Nov. 4, county hospital. $1,200,000. CD 7/14.

▲ **O., Ontario**—SCHOOL—Bd. Educ., voted bonds Nov. 4, high school **$1,500,000.** Marr, Knapp & Crawfis, 138 Ray Ave., New Philadelphia, archts. CD 10/24.

▲ **O., Parma**—SCHOOL—Bd. Educ., 5401 W. 54 St., voted bonds Nov. 4, high school. **$4,500,000.** CD 6/25.

▲ **O., Sebring**—SCHOOL—Mahoning Local School Dist., defeated bonds Nov. 4, high school. **$1,350,000.** CD 9/23.

▲ **O., Sylvania**—SCHOOL—Bd. Educ., voted bonds Nov. 4, high school addn. to grade schools. **$2,370,000.** CD 6/20.

▲ **O., Toledo**—SCHOOLS—Adams Twp. Bd. Educ., defeated bonds Nov. 4, schools. **$2,280,000.** CD 7/24.

▲ **O., Toledo**—SCHOOLS—Bd. Educ., 1900 Linwood St., Toledo, defeated 2.5 mill levy to run 3 years Nov. 4, high schools in West and South Toledo, **$6,500,000**; voted 1.8 mill levy Nov. 4, school replacement, **$1,575,000.** CD 7/25.

▲ **O., Toledo**—SCHOOLS—Oregon Local School Dist., 5721 Seaman Rd., Zone 5, voted bonds Nov. 4, two Junior High Schools. **$4,000,000.** CD 7/28.

▲ **O., Van Wert**—SCHOOL—Van Wert Bd. Educ., defeated bonds Nov. 4, high school. **$1,700,000.** Joseph Baker & Assoc., Newark, archts. CD 7/24.

▲ **O., Warren**—SCHOOLS—Warren Bd. Educ. voted bonds Nov. 4, schools, **$1,200,000.** CD 8/14.

▲ **O., Westerville**—SCHOOL—Bd. Educ., voted **$1,490,000** bonds Nov. 4, high school, McLaughlin & Keil, 500 Dominion Bldg., Lima, archts. CD 7/21.

▲ **O., Westlake**—SCHOOL—City, Bd. Educ., Dover Center Rd., voted bonds Nov. 4, school, **$1,400,000.** CD 7/24.

▲ **O., Wilmington**—SCHOOL—Bd. Educ., City Hall, voted bonds Nov. 4, bldg. addn. and renovating present Junior High School. **$1,500,000.** CD 7/22.

▲ **O., Youngstown** — SCHOOL — Bd. Educ., Austintown School Dist., 5800 Mahoning Ave., voted bonds Nov. 4, Junior High School **$1,250,000.** Kling & Frost, 661 Wick Ave., archts. CD 7/9.

▲ **Ore., Salem**—PRISON—Oregon State Bd. Control, plans by Annand, Boone & Lei, 1530 W.W. Taylor St., Portland, women's prison. **$1,815,000.**

▲ **Pa., Lancaster** — SCHOOL — Lancaster Twp. School Dist., voted **$3,200,000** bonds school constr. CD 1/9.

▲ **Pa., McKeesport**—SCHOOLS—City, City Hall, voted $3,800,000 Nov. 4, schools.

▲ **Pa., Phila.**—CITY HALL—Dpt. Procurement, City Hall Annex, voted $10,000,000 bonds Nov. 4, city hall, Reybune Plaza. **$16,000,000.** CD 10/6.

▲ **Pa., Reading**—SCHOOL—Reading School Dist., 8th and Washington Sts., voted bonds Nov. 4, school constr. for retarded children. $1,300,000; school admin. bldg. $750,000.

▲ **R. I., Exeter**—SCHOOL—State R. I., State Office Bldg., Providence, voted **$2,700,000** bonds Exeter School for Mentally Retarded Children. CD 11/9/56.

▲ **R. I., Kingston**—COLLEGE BUILDINGS—State R. I. State Office Bldg., Providence, voted $2,500,000 bonds

(continued on page 76)

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(continued from page 73)

Nov. 4 college bldgs., University of Rhode Island. CD 11/9/56.

▲ **R. I., Providence**—NUCLEAR REACTOR—State R. I. & Prov. Plants, Div. Purchase, State House, voted bonds Nov. 4, purchase nuclear reactor. $1,000,000.

▲ **S. C., Charleston**—AUDITORIUM—City and Charleston Co., defeated bonds Nov. 4, municipal auditorium. $2,500,000. CD 10/22.

▲ **S. D., Sioux Falls**—COURTHOUSE—Comrs. Minnehaha Co., voted $100,000 bonds Nov. 4 and approval spending $900,000 from general funds, courthouse. $1,000,000. CD 9/4.

▲ **Tenn., Knoxville**—SUBDIVISION—Knoxville Housing Auth., 1701 Jourlmon Ave., plans by Clark Sweester, Journal Bldg., Austin Heights subdivision. $2,000,000. CD 9/25.

▲ **Tenn., Knoxville**—DORMITORY—University of Tennessee, Knoxville, women's dormitory. $2,000,000.

▲ **Tex., San Angelo**—COLLEGE BLDGS.—San Angelo College, San Angelo, student union, science, and girl's dormitory. $1,125,000. Constr. 1959.

▲ **Tex., San Antonio**—SCHOOLS—Northeast Ind. School Dist., 10214 Sommers Dr., bond election Dec. 13, Junior High School. $1,250,000; Lower Grade School (not elementary) $750,000; Elementary School No. 1 $450,000; Elementary School No. 2 $500,000. CD 8/8.

▲ **Tex., Sherman**—SCHOOL—Sherman Ind. School Dist., Sherman, Junior High School. $1,250,000. CD 3/29/56.

▲ **Tex., Sinton**—HOUSING—Sinton Housing Auth., 100 low-cost housing units. $1,000,000.

▲ **Wash., Ellensburg**—COLLEGE ADDNS.—Central Washington College of Education, education-psychology bldg., $800,000 funds voted, CD 10/30; 82,500 sq. ft. library, $1,344,288, funds voted. CD 10/1.

▲ **Wash., Medical Lake**—SCIENCE—Eastern Washington College, science bldg. $2,059,500 funds voted.

▲ **Wash., Olympia**—SCHOOL—School Dist. No. 1, voted $1,605,000 bonds Nov. 4 to complete financing, high school, $2,000,000. CD 9/18.

▲ **Wash., Pullman** — COLLEGE ADDNS. — Washington State College, completion of plant science bldg., $1,451,675 funds voted; power plant addn., $300,000 funds voted; plans by Harmon, Pray & Detrich, 2000 5 Ave., Seattle, Zone 1, chemistry bldg., $2,000,000 funds voted, CD 5/22; biological science bldg., $1,318,205, funds voted; technology bldg. addn., $1,786,779 funds voted. CD 1/9/57.

▲ **Wash., Sedro Woolley**—HOSPITAL, etc.—State Dpt. Institutions, Olympia, receiving, treatment, medical and surgical bldg. at Northern State Hospital, $1,793,200 funds voted; women's occupational bldg., $361,000 funds voted. CD 1/23/57.

▲ **Wash., Spokane**—SCHOOL—School Dist. No. 81, W. 503 4 St., defeated $7,000,000 bonds Nov. 4, to finance South Side Senior High School and smaller constr. projects. $3,000,000. CD 10/29.

▲ **Wash., Walla Walla**—SCHOOL—School Dist. No. 140, voted $2,300,000 bonds Nov. 4, second high school. CD 10/1.

▲ **Wash., Walla Walla**—HOSPITAL—State Dpt. of General Admin., Walla Walla, hospital wing at state penitentiary, $900,000 funds voted; 2 cell block wings, $1,250,000 funds voted. CD 12/6/56.

▲ **Wis., Eau Claire**—SCHOOL—Bd. Educ., Junior-Senior High School. $2,500,000.

▲ **Wyo., Cheyenne**—SCHOOL—Cheyenne School Dist., plans by Kellogg & Kellogg, 2309 Warren Ave., and Sam Hutchings, 1902 Thomes Ave., high school. $2,700,000. CD 10/29.

▲ **Alta., Edmonton**—HOSPITAL—City, City Hall, ratepayers approved money by law Oct. 15, Royal Alexandra Hospital addn. $6,000,000. CD 9/26.

▲ **Ont., Toronto**—CITY HALL—City, City Hall, plans by Viljo Rowell, Helsinki, Finland, 4 story, two tower office blocks, incl. 32 story, 330 ft. high and 26 story, 290 ft. high city hall, $18,000,000. H. K. Ferguson Co. of Canada Ltd., 20 College St., Toronto, Ont., consult. engrs. CD 10/7.

COMMERCIAL BUILDINGS

▲ **Alaska, Anchorage**—OFFICE—Walter J. Hinckel, Anchorage, and Michael T. Halbout & Assocs., 5111 Westheimer Rd., Houston, Tex., office. $5,000,000.

▲ **Calif., Oakland**—MOTEL—Don Younger, Inc., and Ralph D. Theobald, 25 California St., San Francisco, plans by Tallie Maule, 1305 Montgomery St., San Francisco, motel at international airport, lease build for Port of Oakland. $1,500,000. CD 4/2, under Public Bldgs.

▲ **Calif., Stockton**—COLLEGE FACILITIES—College of the Pacific c/o President, Admin. Bldg., N. Pacific Ave., college facilities expan., incl. Irving Library Wing, School of Education, North and South Conservatory Wings, theater, educational television studio, tunnels for football stadium, gym and facilities. $10,000,000. CD 10/10/55.

▲ **Conn., New Haven**—OFFICE—First New Haven National Bank, 42 Church St., plans by Douglas Orr, 111 Whitney Ave., 8 story, 112,000 sq. ft., 70 x 200 ft. front and rear glass with granite trim office bldg., $3,000,000. Paul Rudolph, c/o Yale Univ., consult. engr. CD 10/1.

▲ **Ill., Cahokia**—RESIDENCES—Parkfield Development Co., 3229 Camp Jackson Rd., East St. Louis, 890 residences in Parkfield Terrace and Parkfield Manor subdivisions. $5,550,000. Constr. 1959 to 1964.

▲ **Ill., Chicago**—APARTMENT—David Gross & Meyer Goldstein, 159 N. Dearborn St., plans by John Reddersen & Assocs., Inc., 64 Old Orchard, Skokie, 15 story, 107 unit, L-shaped apartment, southeast corner Dearborn Pkwy. and Goethe St. $2,000,000.

▲ **Ill., Chicago**—SALES AND SERVICE—White Motor Co., 2401 Archer Ave., 100,000 sq. ft. sales and service center, southeast corner 38 St. and Ashland Ave. $1,000,000.

▲ **Ill., Urbana**—SHOPPING CENTER—T. J. Strong, 512 Colorado Ave., shopping center, Sunnycrest Subd. $2,000,000.

▲ **Ind., West Lafayette**—SHOPPING CENTER—Wilbur C. Scheier, 350 W. Washington St., Frankfort, shopping center, parking, Brown St. and N. River Rd. $2,000,000.

▲ **La., Bogalusa** — MEDICAL CENTER, etc.— Bogalusa Community Medical Center, Bd. Trustees, Bogalusa, plans by Geier & Lasseigne, 3160 Florida Ave., Baton Rouge, 2 Community Medical Center wings, one 2 story, steel, masonry, etc. and other 1 story for administration offices and out-patient clinic. $1,000,000.

▲ **Mass., Falmouth**—HOSPITAL—Falmouth Hospital Assoc., 230 Main St., Falmouth, plans by Aisner & Atwood, 10 Newbury St., Boston, hospital. $1,000,000. CD 8/28.

▲ **Mass., Saugus**—DEPARTMENT STORE—Sears, Roebuck & Co., 201 Brookline Ave., Boston, Mass., plans by The Architects' Collaborative, 63 Brattle St., Cambridge, Mass., department store, incl. shopping center, Westside Newburyport Turnpike. $2,000,000. Bids March-April 1959.

▲ **Mich., Detroit**—SYNAGOGUE—Congregation Shaarey Zedek, 2900 W. Chicago St., plans by Percival Goodman, 1860 Broadway, New York 23, N. Y. and Albert Kahn Assocs., 345 New Center Bldg., synagogue on 40-acre site, northwest of here. $3,000,000. (Funds are now being raised and constr. is scheduled for next Spring). CD 5/20.

▲ **N. H., Hanover**—HOPKINS CENTER, etc.—Trustees Dartmouth College, Hanover, plans by Harrison & Abramovitz, 630 5th Ave., New York, N. Y. and Campbell & Aldrich, 38 Newbury St., Boston, Mass. Hopkins Center-4 bldgs., galleries, studies, work shops for creative arts, concert hall, lecture auditorium, and public meetings theatre. $7,000,000. CD 6/5.

▲ **N. J., Princeton** — BIOLOGY — Princeton University, plans by O'Connor & Kilham, 101 Park Ave., New York, N. Y., biology bldg. $1,400,000. CD 3/19/57.

▲ **N. Y., Amherst**—COMMERCIAL DEVELOPMENT, etc.—Unnamed Corp., c/o Amabile Bros., 321 Ramsdell Ave., Buffalo, plans by Albert A. Rumschik, 249 Linwood Ave., Buffalo, N. Y., commercial development to incl. bowling alley, medical center and office bldg., Transit Rd. $1,250,000.

▲ **N. Y., Amherst**—HOMES—Unnamed Corp., c/o Amabile Bros., 321 Ramsdell Ave., Buffalo, plans by Albert A. Rumschik, 249 Linwood Ave., Buffalo, 120 homes on 33-acre tract, Transit Rd. $2,750,000.

▲ **N. Y., North Tonawanda**—SHOPPING PLAZA—Pearce & Pearce, 900 Niagara Falls Blvd., Kenmore, shopping plaza near Wurlitzer Park Village. $1,000,000. Constr. [illegible]

▲ **N. Y., North Tonawanda**—SHOPPING PLAZA—Powerlin Plaza, Inc., 2176 Delaware Ave., Buffalo, N. Y., 120,000 sq. ft. shopping plaza at Division and Erie Sts. $2,000,000. Constr. next Spring.

▲ **N. Y., North Tonawanda**—HOMES—Young Bros., 555 Delaware, Cheektowaga, N. Y., 1,200 homes "Hollywood Park", Old Niagara Falls Blvd., Walck Rd. east Robinson and Zimmerman Sts., to be built over 4-year period. $25,000,000.

▲ **O., Toledo**—ACADEMY—Toledo Sisters of Notre Dame, Monroe and Secor Rds., plans by Munger, Munger & Assoc., Security Bldg. Notre Dame Academy, Monroe Sylvania Aves. $1,300,000.

▲ **Ore., Portland** — APARTMENTS — Carlson National Homes Inc., c/o Rev. Clifford Gustafson, 3536 E. 95 St., Seattle, Wash., plans by E. Mahlum, Lloyd Bldg., Seattle 1, Wash., 4 story, multi-family apartment. $1,500,000.

▲ **Pa., Cheltenham**—OFFICE—Cheltenham, Inc., 2502 Cheltenham Ave., Phila., office bldg., Cheltenham Ave. and Broad St. $1,500,000.

▲ **Pa., Mechanicsburg**—HOTEL—Holiday Motor Hotel West, Mechanicsburg, R. D., plans by H. S. Eden, 23 S. Front St., Harrisburg, 5 story, brick, steel hotel bldg. to adjoin existing motel; restaurant addn. $1,500,000.

▲ **Pa., Upper Darby**—SCHOOL—Roman Catholic Archdiocese, of Phila., 310 N. 19 St., Phila., Prendergast High School addn. $1,000,000. Stickle & Assocs., Narberth, consult. engrs. and archts. CD 6/29/55.

▲ **Tex., Dallas**—SHOPPING CENTER, etc.—Leon A. Tobias & Assocs., 2301 Griffin St., Houston, shopping center $2,250,000, area and auto center paving $77,500, east of Noel Lane.

▲ **Tex., Dallas**—SHOPPING CENTER, etc.—Wm. E. Weatherford & Assocs., 4611 Royal Lane, shopping center. $3,600,000, Shopping area pavement and auto center $85,000, south of Valley View Rd. and west of Noel Lane.

▲ **Tex., Fort Worth**—SHOPPING CENTER, etc.—Les McCarty Development Co., 2718 E. Lancaster Ave., 1 story, masonry shopping center, junction Hy. 121 and 183, $8,000,000; 400,000 sq. ft. on-site hard-paving for 4,000 cars. $200,000.

▲ **Tex., Houston**—STORES, etc.—J. P. Boone, Builder, 4320 Alief Rd., plans by Lucian T. Hood, 2317 Bissonnet St., 250,000 sq. ft. stores, $1,500,000; 200,000 sq. ft. commercial bldg., $3,000,000; technical and shopping center, $4,000,000, all off Richmond Ave. CD 10/28/57.

▲ **Tex., Houston** — COLLEGE OF NURSING — Texas Woman's University College of Nursing, 1133 M. D. Anderson Blvd., plans by John N. Freeman, Jr., 1700 Main St., women's college of nursing, incl. classrooms, faculty offices and residence facilities in Texas Medical Center. $1,000,000.

▲ **Tex., San Antonio**—SHOPPING CITY—Mount[illegible] Townsite Co., Park St., National Bank Commerce Bldg., shopping city, $5,000,000; 25 acre site earthmoving development, $55,000; shopping area hard-paving and 2,000 auto center, $80,000, SE section of city, Gevers, Mittman and Hiawatha Sts.

▲ **Wash., Seattle**—HOTEL—H.W.I. Johnson Etal, C. Etruria St., plans by Rolland Denny Lamping, 133 E. John St., hotel, Seattle-Tacoma International Airport, $3,000,000.

▲ **B. C., Vancouver**—CLUB QUARTERS ALTERATIONS etc.—Terminal City Club, 800 block W. Hastings St., plans by Thompson, Berwick & Pratt, 1553 Robson, existing club quarters alterations; also 6 story parking area. $1,800,000.

▲ **Ont., Brockville**—SHOPPING CENTER—Ottawa Fruit Supply Ltd., 400 Industrial St., Ottawa, shopping center, Reynolds Dr., $1,000,000.

▲ **Ont., Renfrew**—HOSPITAL—Victoria Hospital Bd., 499 Raglan Ave. N., plans by Agnew & Ludlow, 2 Merton St., Toronto, hospitol, $1,227,000.

▲ **Que., Montreal**—OFFICE—Canadian Bank of Commerce, 25 King St. W., Toronto, Ont., and Maxwell Cummings & Sons, 1390 Sherbrooke St. West, Montreal, plans by Peter Dickenson, 1910 Yonge St., Toronto, Ont., and Max Roth, 1015 Sherbrooke St. W., 6 story, glass walled office bldg., 565 ft. high, Windsor Plaza, $22,000,000. Constr. early 1959.

▲ **Sask., Estevan**—SHOPPING CENTER—Owner, c/o Sinclair Real Estate & Insurance Co., Estevan, shopping center, incl. supermarket, service and specialty stores, medical and professional offices and motor-hotel, $2,000,000.

INDUSTRIAL BUILDINGS

▲ **Mo., St. Louis County**—PLANT—Gereke-Allen Cartage Co., 5101 Penrose St., St. Louis, Zone 15, 120,000 sq. ft. paper box plant for housing production, design and development and warehouse facilities, incl. general offices on 7-acre site adjacent to Page Ave. and Warson Rd. in Lindberg-Warson Industrial Center, $1,000,000.

▲ **Tex., Beaumont**—REFINERY UNIT—Magnolia Petroleum Co., N. Esperson Bldg., Houston, remodeling, conversion catalytic reformer refinery unit into same former. $7,000,000. CD 4/12/57.

▲ **Tex., Bishop**—PLANT—Champlin Oil & Refining Co., 5301 Camp Bowie Blvd., Fort Worth, expanding gas processing plant, near here. $3,000,000.

▲ **Tex., Houston**—AUTO PARKING GARAGE—Humble Oil & Refining Co., 1216 Main St., plans by Welton Becket, 5657 Wilshire Blvd., Los Angeles, Calif., prime archt., Golemon & Rolfe, 1500 Travis St., and Pierce & Pierce, 2200 Welch St., Houston, consult. archts., auto parking garage. $3,000,000. Thos. E. Willier, 1528 Commerce Bldg., traffic consult. engr. and McClelland Engrs., Inc., 2649 Main St., soil and fdn., engrs. CD 8/1, under Commercial Bldgs.

▲ **Wash., Tacoma**—PLANT—Reichhold Chemicals, Inc., 525 N. Broadway, White Plains, N. Y., phenol plant, $4,000,000. Constr. expected to begin next summer.

▲ **Que., Chibougamau** — PLANT — Sulphur Converting Corp., c/o J. A. Leclerc, pres., 4007 Marlowe Ave., Montreal, plans by Jean Julien Perrault, 3737 Van Horne Ave., Montreal, sulphur producing plant from pyrite ores. $20,000,000. L. E. Burgener, c/o Jean Julien Perrault, archt., 3737 Van Horne Ave., Montreal, consult. engr. Constr. Spring 1959.

UNCLASSIFIED

▲† **Alaska, Anchorage**—ATOMIC POWER REACTOR—Chugach Electric Assn., plans by Burns & Roe, 16 W. Broadway, New York, N. Y., atomic power reactor. $20,000,000. Work expected to start in 1961. CD 8/21/56.

▲ **Calif., San Francisco**—MAINTENANCE YARD—City and San Francisco Co. Dpt. P. Wks. City Hall, defeated bonds Nov. 4, maintenance yard for Dpt. Electricity, $1,500,000. CD 8/21.

▲ **Calif., San Francisco**—MAINTENANCE YARD—City and San Francisco Co., Dpt. P. Wks., City Hall, defeated bonds, Nov. 4, maintenance yard for Dpt. P. Wks., $1,300,000. CD 8/21.

▲ **Calif., San Francisco**—PARK—City and San Francisco Co., Dpt. P. Wks., City Hall, defeated bonds Nov. 4, park adjacent to Embarcadero and near Ferry Bldg. $2,785,000. CD 8/21.

▲ **Md., Baltimore**—PARK IMPRVS.—Mayor & City Council, City Hall, voted bonds Nov. 4, recreation and parks department, $1,100,000. CD 10/27.

▲ **Mich., Detroit**—PORT FACILITIES—Bd. Supervs. Wayne Co., City-County Bldg., defeated $7,100,000 bonds Nov. 4, port facilities. CD 9/22.

▲ **New Mexico**—STEAM GENERATING PLANT, etc.—Lea Co. Electric Co-operative, Lovington, 16,500 kw steam generating plant, $5,792,000; 303 mi. rural pole distri. lines, $550,000. CD 1/7/53.

▲ **South Carolina**—RURAL DISTRIBUTION LINES—Blue Ridge Elec. Co-operative, Pickens, 230 mi. electric distr. lines, etc., Pickens and Oconee Counties. $1,360,000. Southern Engineering Co., 1000 Crescent Ave. N. E., Atlanta, Ga., consult. engr. CD 9/9/54.

▲ **Wash., Seattle**—PARK IMPRVS.—City, City Hall defeated $3,500,000 bonds Nov. 4, park imprvs. CD 9/26.

▲ **Wash., Seattle**—PIER, etc.—Port of Seattle, Bell St., Terminal, rebuild Pier 44 by moving existing bulkhead 125 ft. seaward, extending pier 250 ft. and wid'n. aprons, $2,380,000; wid'n. north apron at Pier 46, $870,000. Work to begin next year. G. T. Treadwell, ch. engr. CD 3/13/47.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

December 2, 9 Massachusetts

HEAVY CONSTRUCTION—LB & CA

▲ **MAINE**—State Hy. Comn., Augusta, Bids opened 11/12,

W. H. Hinman, Inc., North Anson, Me., LB **$1,789,015** (2 bidders), 2.141 mi. grading, drainage project and 1 bridge City of Portland, Town of Falmouth, FAP No. I-295-3(3) Cumberland Co. CD 11/7.

VERMONT—State Dpt. Hys., State House, Montpelier, Bids opened 11/14,

Vt.—**Baslow Constr. Corp.**, 45 Center St., Rutland, Vt., LB **$645,915**, est. $650,000. hy. and bridge U. S. Rte. 7, Proj. E 0193, New Haven;

Vt.—received no bids Nov. 14, hy. work, Rte. 103, Proj. F, 25-1 (1) Rockingham Co., est. **$200,000**. CD 10/31.

CONNECTICUT—State Hy. Dpt., 165 Capitol Ave., Hartford, Bids opened 10/27,

Oneglia & Gervasini, Inc., Casson Ave., Torrington, Conn., LB **$784,749** (10 bidders) hot b. conc. paving incl. 3 structures, 20,204 lin. ft. Proj. 65-62, relocation Rte. 72, Fed. Aid Proj. S-81-(1). CD 10/8.

BUILDINGS—LB & CA

▲ **Fredk. Hoelzel, Inc.**, Elizabeth St., Pine Orchard, Conn. Owner Builds, **$1,400,000**, 140 HOUSES, "Shawondasee" Flanders Rd., STONINGTON, CONN.

▲ **E. & F. Constr. Co.**, 94 Wells St., Bridgeport, Conn., CA **$2,416,000**, HIGH SCHOOL, Madison Ave., TRUMBULL, CONN. Town, Town Hall, Trumbull, Conn. Bids May 7, awarded Nov. 13. CD 5/13, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 2 Maryland

STREETS AND ROADS

December 2 Maryland December 5 Pennsylvania

▲ **N. Y., Brooklyn**—BA 12/3—Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York, Zone 7, general constr. structures and equipment, plumbing, heating and ventilating, electrical work Coney Island Pollution Control Proj., 3d Stage, Brooklyn Boro. $9,500,000. Plans deposit $80. Extended date. CD 10/24.

† **N. Y., Montauk**—RADAR TOWER—BA 12/11—U. S. Eng., 111 E. 16th St., New York, Zone 3, radar tower at Montauk Air Force Base, Serial No. ENG-30-075-59-101 AN/FPS-35/24. $500,000-$1,000,000. CD 7/3.

BUILDINGS—BA

▲ **Pa., Phila.**—MANUFACTURING—BA 12/2—Lyle F. Boulware, archt., 123 S. Broad St., manufacturing bldg. for Keebler Biscuit Co., G St. and E. Hunting Park Ave., Phila. $1,000,000. McCormick Taylor Assocs., Suburban Station Bldg., engrs.

▲ **Del., New Castle** — SCHOOL — BA 12/3 — Rosehill Minquadale School Dist., constr. High School, Route 40, Garfield Park, $3,200,000. E. William Martin, 830 West St., Wilmington, archt. CD 5/23.

▲ **Md., Towson**—SCHOOL—BA 12/4—Baltimore Co. Bd. Educ., Aigburth Rd., Zone 4, 1 story, masonry, concrete, steel block, Johnnycake Junior High School, Kent Ave. and Johnnycake Rd. near Catonsville. $1,000,000. Plans deposit $50. Tyler, Ketcham & Myers, 513 Park Ave., Baltimore, Zone 1, archts. CD 2/4.

Pa., McConnelisburg—SCHOOL—BA 12/11—Pa. Pub. School Bldg. Auth., 101 S. 25th St., Harrisburg, Junior-Senior High School bldg. and addn. to elementary bldg. for McConnellsburg Jt. School Bd., est. $660,000, elementary school only. Plans deposit $35. Buchert Engineering Corp., 611 W. Market St., York, archts. CD 12/2/57.

▲ **N. Y., Neponsit**—HOME for AGED—BA 12/17—Dpt. P. Wks., Rm. 1800L, Municipal Bldg., New York, Zone 7, general constr. plumbing work, heating and ventilating and electrical work for conversion of former Neponsit Beach Hospital to Home for Aged. Plans deposit $40. CD 2/28.

BUILDINGS—SLC

N. J., Camden—MOTEL—Owner, c/o Cox & Guttman, archts., 709 Market St., soon lets contract, motel, 8 and Market Sts. $750,000, William E. Foley, 724 Market St., engr.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Dpt. P. Wks., State Office Bldg., Albany,

Fago Bros. Contg. Co., Inc., 521 Young St., Tonawanda, N. Y., CA **$2,796,795**, laying trunk for Section 1 of Kensington Expressway in city of Buffalo, incl. grading 1.69 mi. Expressway from Landon at one end to Maple near Michigan and Cherry at other, incl. drainage sewer and grading; contract will be detours at sites of future bridges to carry traffic over Expressway into streets names, Erie Co. Bids Sept. 18. CD 9/19, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., Kenneth D. Rice, secy., 1035 Parkway Ave., Trenton, Bids opened 11/18,

N. J.—Samuel Braen's Sons, 662 Goffle Rd., Hawthorne, N. J. LB **$369,884**, first constr. section bid, 2 mi. stretch from west of Grandview Ave. westerly to 1,000 ft. west of Helena Ave., Bergen Co.;

N. J.—Sette Engineering Co., E 36 Midland Ave., Paramus, N. J. LB **$818,178**, second constr. section, extending 1.9 mi. westerly from the end of the first constr. section of Colonial Rd., Franklin Lakes, Bergen Co.;

N. J.—The Thomas Nicol Co., Hamilton Rd., Farmingdale, N. J. LB **$641,487**, (5 bidders), dualizing 2 mi. Rte. 202 immediately south of its intersection with Rte. 28, Raritan Borough, Somerset Co. CD 10/30.

BUILDINGS—LB & CA

▲ **Lunstead Gardens**, c/o DeMattia & O'Brien, 415 Clifton Ave., Clifton, N. J., Owner Builds, **$1,000,000**. 50 HOUSES, known as Lunstead Gardens, Scoles Ave., CLIFTON, N. J.

J & M Realty Corp., 1 Ridge Rd., Lyndhurst, N. J. Owner Builds, **$750,000**, 40 HOUSES, final section, in Woodlands, Sycamore Rd., Washington Twp., DUMONT, N. J. Percy Simon, Cedar Lane, Teaneck, N. J., archt.

H.E.H. Corporation, West Saddle River Rd., Hohokus, N. J., Owner Builds, **$700,000**, 19 HOUSES, Hollywood Ave., HOHOKUS, N. J.

▲ **Amrey Bldg. Co.**, 1223 Lansdowne Terrace, Plainfield, N. J., Separate Contracts, **$1,320,000**, 80 unit RESIDENTIAL DEVELOPMENT, W. Broad St., HOPEWELL, N. J.

Richard Korman, Langhorne, Pa. Separate Contracts. **$800,000**. 90 RESIDENTIAL DEVELOPMENT, Middletown Twp. Rte. 281, LANGHORNE, PA. Paul E. Kohler, Churchville, Pa., archt.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., LB **$1,282,000**. HOSPITAL, ncl. MOTHERS BLDG. CHAPEL and CONVENT, PHILA., PA. St. Vincents Homes, 410 Sagamore Dr., Havertown, Pa. Bids Nov. 4. CD 10/29.

▲ **John McShain Inc.**, 17th and Spring Garden Sts., Phila., Pa. CA **$1,000,000**, PARKING GARAGE, 219 225 S. Broad St., PHILA., PA. Broad-Locust Garage Corp., c/o Wallace & Warner, Bryn Mawr, Pa., archts. Dorfman & Bloom, 1411 Walnut St., Phila., Pa., engrs.

John A. Robbins Co., 3 Penn Center Plaza, Phila., Pa., CA **$750,000**, 90 unit MOTEL addn. and swimming pool, PHILA., PA. Carroll & Cutler, Inc., 40th and Walnut Sts., Phila., Pa. Bids Oct. 9. CD 10/9.

▲ **Dorset Contg. Co., Inc.**, 4508 Hamilton St., Hyattsville, Md., CA **$1,138,000**, COURT HOUSE addn., ROCKVILLE, MD. Comrs Montgomery Co., Court House, ROCKVILLE, MD. Bids Nov. 5. CD 11/7, under LB.

▲ **Roscoe Engineering Corp.**, 1107 19 St. N.W., Wash., D. C. CA **$1,269,000**, constr. SOCIAL CENTER and DORMITORY, WASH., D. C. Catholic University, 620 Michigan Ave. N.E., Wash., D. C. Bids Oct. 15. CD 10/17, under LB.

SOUTH

STATE HIGHWAY LETTINGS

BRIDGES

December 5 Kentucky December 16 Florida

STREETS AND ROADS

December 5 Kentucky

BUILDINGS—BA

▲ **Ga., Atlanta**—JUVENILE COURT etc.—BA 12/10—Fulton Co. Bd. Comrs. Roads & Revenues, Courthouse, Juvenile Court and Detention Home. $1,850,000. John J. Harte Co., 284 Techwood Dr. N. W., archts. and engrs. CD 4/30/57.

▲ **Miss., Hattiesburg**—STUDENT FAMILY HOUSING, etc.—BA 12/12—State Bldg. Comn., Woolfolk State Office Bldg., Jackson, 150,000 sq. ft. 240 dwelling units, incl. 1 story, rein.-con. brick, concrete block service bldg. at Mississippi Southern College. $1,600,000. Plans deposit $75, $25 for addnl. set. Landry & Mathes, 214 W. Pine St., archts.

HEAVY CONSTRUCTION—LB & CA

▲ **WEST VIRGINIA**—State Road Comn., Charleston, Zone 5,

W. Va.—Harrison Constr. Co., 1101 Western Ave., Pittsburgh, Pa., CA **$3,837,155**, c. con. pavement and structures 2.104 mi. Interstate 70, Proj. I-70-1(8)2, Ohio Co.;

W. Va.—Nello L. Teer Co., Durham, N C, CA **$1,781,939**, grading, draining, structures 3.412 mi. Interstate 64, Proj. I-64-1(21) 35, Contr. No. 1, Putnam Co. Bids Nov. 6, awarded Nov. 10. CD 11/11, under LB.

▲ **WEST VIRGINIA**—State Road Comn., Charleston, Zone 5, Bids opened 11/13,

W. Va.—Kyova Constr. Co. & Southern Contg. Co., 1639 7 Ave., Huntington, W. Va., LB **$569,477**, cement concrete pavement 0.589 mi. Camden Ave., Parkersburg, W. Va. Rte. 81, Proj. DUS. 669(2), Wood Co.;

W. Va.—Andersons', Inc., Box 3004, Charleston, W. Va., LB **$212,357**, b. conc. surf. 4.849 mi. Point Pleasant to Letart Rd., Sec. Rte. 15, Proj. D.S. 23(3), Mason Co.;

W. Va.—Frederick Engineering Co., Box 2078, Huntington, W. Va., LB **$288,934**, grading, draining, crusher run base 2.386 mi. Ashton to Upland Rd., Sec. Rte. 41, Proj. D.S. 618(3), Mason Co. CD 11/5.

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Square, Atlanta, Bids opened 11/14,

Atlantic States Constr. Co., 7 Baltimore Place N.W. Atlanta, Ga., LB **$1,114,975** bridge over Lazaretta Creek and approx. 0.68 mi. b. conc. paved approaches on Savannah to Savannah Beach Rd., F-064-1(6), SR 17 Chatham Co. CD 11/6.

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Square, Atlanta, Bids opened Nov. 14,

Ga.—Shepherd Constr. Co., Inc., Box 8068, Station F, Atlanta, Ga., LB **$404,282**, wid'n., resurf. with b. conc., exten. 4 bridge culverts on 8.137 mi. Statesboro-Millen Rd., U. S. Rte. 80 DF-015-(18) SR 67 Bulloch Co.; LB **$989,158**, wid'n., resurf. with b. conc. curb and gutter and concrete sidewalks and 1 bridge, 11.737 mi. Perry to Ft. Valley Rd., F-001-3(5) SR 7, Houston and Peach Counties;

Ga.—Claussen Lawrence Constr. Co., Box 840, Augusta, Ga., LB **$446,791**, wid'n., resurf. b. conc. 10.478 mi. and extending 2 bridge culverts on Statesboro-Millen Rd. F-015-1(19) SR 67, Jenkins Co.;

Ga.—Hugh Steele Constr. Co., Box 398, Centre, Ala., LB **$1,424,298**, b. conc. 13.928 mi., 3 bridges and 2 bridge culverts on Haskinsville to Warner Robins Rd., SR 247 on Mile S. of Kathleen F-034-3(2) CR, Pulaski and Houston Counties;

Ga.—DuBose Constr. Co., Box 332, Montgomery, Ala., LB **$1,459,748**, b. conc. paving 4-lane bridge over Flint River and 4-lane bridge over SAL R.R. tracks on SR 38 one 2-lane bridge over ACL R.R. tracks on SR 1, partly relocated in Bainbridge 1.845 mi. U-007-1(5) DT 1 and G-027-2(3) CT 1 SR 38, Decatur Co. CD 11/6.

▲ **FLORIDA**—State Rd. Dpt., Tallahassee,

Cone Bros. Constr. Co., Box 1259, Tampa, Fla., CA **$1,460,294**, 4-lane 10½ in. limerock base with Type 1 b. conc. surf. course and binder course 6½ in. limerock base shoulder with Type 1-A surf. treat., constr. 3 concrete grade separation bridges 824 ft. in length with prestressed beams on concrete piers founded on prestressed concrete piling, aluminum handrail, small drainage structures, fencing, etc. 4.249 mi. for point approx. 1 mi. north SR 430-A (the north end of Proj. No. I-4-2(10) FAI Proj. No. I-4-2(11) 133 Job No. 79110-3404 SR 400 Volusia Co. Bids Sept. 23. CD 9/30, under LB.

† **U. S. Eng.**, Box 4970, Jacksonville, Fla., rejected bids Oct. 21, improv. Canal 40 Section 1 (Indian Prairie Canal) and constr. Structures 72 and 75, ENG.-08-123-59-17, FLORIDA, LB **$929,070**. CD 11/7, under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Talbott Constr. Corp., 30 Wall St., Winchester, Ky., CA **$4,341,863**, b. conc. 4.149 mi. Interstate Covington-Lexington Rd., I 75-8(12) 181, Kenton Co. Bids Oct. 31. **(Correction**—low bidder). CD 11/6, under LB.

▲ **TENNESSEE**—State Hy. Dpt., Nashville, Bids opened 11/14,

Tenn.—Herman Larson, Dallas, Tex., LB **$2,696,059**, widening existing Aulon Viaduct and approaches Poplar Ave. between Union Ave. extended and Fenwick St. and constr. new viaduct and approaches between Union Ave. extended and Poplar Ave. in Memphis, Proj. U-050-1 (3), Shelby Co.;

Tenn.—G&N Constr. Co., McMinnville, Tenn., LB **$94,741**, concrete deck girder bridge and grading, etc., approaches to bridge, 1.03 mi. Secondary Rte. No. 6261 at White Oak Creek, Proj. S-6261 (1), Houston Co. CD 10/29.

▲ **TENNESSEE**—State Hy. Dpt., Nashville, Bids opened 11/14,

Tenn.—McDowell & McDowell, 718 Murfreesboro Rd., Nashville, Tenn., LB **$1,874,611**, grading, etc., 8.168 mi. Int. Rte. No. 24, Proj. I-24-1 (2) 4, Davidson Co.; LB **$385,584**, grading, etc., 0.69 mi. State Rte. No. 11, Proj. U-011-2 (19), Davidson Co.; LB **$2,426,347**, grading, etc., 3.476 mi. Int. Rte. 40, Proj. I-40-8 (6) 423, Jefferson Co.;

Tenn.—Tillett Bros., Shelbyville, Tenn., LB **$198,499**, grading, etc., 8.234 mi. Secondary Rte. 4420, Proj. S-4420 (1) Frankin and Coffee Counties; LB **$486,954**, grading, etc., 4.642 mi. Int. Rte. 40, Proj. I-40-7 (12) 377, Knox Co.;

Tenn.—W. T. Cutchin, Sr., Dyersburg, Tenn., LB **$319,747**, grading, etc., 4.511 mi. Secondary Rte. 8067, Proj. S-8067 (4) Henderson Co.; LB **$359,009**, grading, etc., 3.579 mi. State Rte. 22, Proj. F-022-1 (2) Pt. IV, Weakley Co.;

Tenn.—Kingsport Paving Co., Kingsport, Tenn., LB **$882,326**, paving, etc., 6.287 mi. State Rte. No. 1, Proj. F-001-9 (28) Sullivan Co.;

Tenn.—J. H. Hood, 5216 Middlebrook Pike N.W., Knoxville, Tenn., LB **$498,192**, grading, etc., 2.647 mi. State Rte. No. 1, Proj. F-001-6 (15) Cumberland Co.;

Tenn.—J. A. Hadley, Humboldt, Tenn. LB **$474,415**; cement stabilized chart or gravel base, etc. 21.056 mi. State Rte. No. 22, Proj. SP-2011-B, Obion Co.;

Tenn.—Cecil Morgan, Clarksville, Tenn., LB **$769,885**; grading, etc. 2.252 mi. State Rte. No. 13, Proj. SMP-236-B, Montgomery Co.;

Tenn.—Summers-Taylor, Johnson City, Tenn. LB **$706,722**; grading, etc. 1.511 mi. State Rte. No. 34, in Johnson City, Proj. U-034-2 (7), Washington Co.;

Tenn.—Southern States Paving Co., 900 44th Ave., N., Nashville, Tenn. LB **$529,034**, paving with bit. materials, etc. 17.759 mi. State Rte. No. 99, Proj. F-071-1 (3) Lewis and Maury Counties;

Tenn.—M. C. West, Columbia, Tenn. LB **$877,566**. grading, etc. 3.234 mi. State Rte. No. 29, Proj. F-029-1 (21) Rhea Co.;

Tenn.—Knoxville Constr. Co., Neylind Dr., Knoxville Tenn. LB **$1,586,511**. paving with bit. mat. (plant

mix) etc. 4.719 mi. Int. Rte. No. 40, Proj. I-40-7 (8) 352, Roane Co.;
Tenn.—Ralph E. Mills, 410 Ann St., Frankfort, Ky. LB $425,270, grading, etc. 1.589 mi. Int. Rte. No. 40, Proj. I-40-7 (10) 375, Knox Co.;
Tenn.—Malone Bros., Greeneville, Tenn. and Cofer & Tedder, Harriman, Tenn. LB $1,606,970; grading, etc. 6.593 mi. Int. Rte. No. 40, Proj. I-40-7 (11) 357, Roane and Loudon Counties;
Tenn.—Walker Constr. Co., 3705 Estes Ave., Nashville, Tenn. LB $316,546, grading, etc. 6.676 mi. Secondary Rte. No. 6201, Proj. S-6201 (5), Giles Co. CD 10/29.

BUILDINGS—LB & CA

▲ Southeastern Constr. Co., 7264 Station C, Atlanta, Ga., LB $1,249,750, FOOD CENTER BLDG., EMORY UNIVERSITY, GA., Emory University, Emory University. Bids Nov. 13. CD 10/10, under Ga., Atlanta.

▲ J. A. Jones Constr. Co., 133 Ellis St., N. E. Atlanta, Ga., LB $1,221,000, Fulton County JAIL, ATLANTA, GA., Fulton Co. Comrs. Roads & Revenues, 409 Admin. Bldg., Atlanta, Ga. Bids Nov. 5. CD 10/24.

▲ J. C. Harper Constr. Co., 307 Harwood Ave., Orlando, Fla., LB $700,412, JUNIOR HIGH SCHOOL, Clearlake Rd. near Dixon Blvd., Cocoa; LB $578,374 JUNIOR HIGH SCHOOL, Merrit Ave. and 1st St., Merrit Island; LB $578,374, JUNIOR HIGH SCHOOL, Babcock St., North of Palm Bay Rd., Melbourne, TITUSVILLE, FLA., Brevard Co. Bd. P. Instruction, W. J. Darden, supt., Titusville, Fla. Bids Nov. 7.

▲ The Flarsheim Co., 50 Fannin St., Shreveport, La., LB $1,386,600, est. $1,350,000 (18 bidders), 3 story, 61,000 sq. ft. rein.-con. frame, granite, glass, brick, CHURCH and 6,480 sq. ft. BOOK STORE, for Louisiana Baptists Main Bldg., ALEXANDRIA, LA. Highland Baptist Church, 520 Olive St., Shreveport, La. Bids Nov. 12. CD 10/16.

▲ Forcum-Lannom Constr. Co., Dyersburg, Tenn. LB $1,753,000. HOUSING Proj. Tenn. 21-1 & Tenn. 21-2, DYERSBURG, TENN. Dyersburg Housing Auth., Dyersburg, Tenn. Bids Nov. 4. CD 10/13.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 9 Wisconsin

STREETS AND ROADS

December 9 Wisconsin

HEAVY CONSTRUCTION—LB & CA

Ohio Fuel Gas Co., 109 N. Front St., Columbus, O. Owner Builds. $860,000, 10.5 mi. 20 and 24 in. pipe line for transmission of natural gas to north Columbus, Gahanna, Worthington and Hilliard, COLUMBUS, O. CD 8/8/57.

▲ Burk Development Co., 5859 E. 25 St., Indianapolis, Ind., CA $620,000, est. $650,000, Warfleigh Storm Sewer, Sect. B, INDIANAPOLIS, IND. Bd. Sanitary Comrs., 421 N. Pennsylvania St., Indianapolis, Ind. Grand total $2,963,577;
Thompson Constr. Co., 3840 Prospect St., Indianapolis, Ind., CA $425,000, est. $450,000, Warfleigh Storm Sewer, Sect. C (Indianapolis, Ind.);
Fruin-Colnon Contg. Co., 1595 E. Epler Ave., Indianapolis, Ind., CA $888,327, est. $1,000,000, Warfleigh pumping station for storm sewers (Indianapolis, Ind.). Bids Nov. 6. CD 10/15;
Tousley Constr. Co., 925 E. St. Clair St., Indianapolis, Ind., CA $1,030,250, est. $1,000,000, E. 32 St. and Washington Blvd. storm sewer drainage sys., (Indianapolis, Ind.). CD 10/14.

▲ Columbia Constr. Co., 2108 Columbia St., Indianapolis, Ind., LB $748,880, est. $750,000, storm sewer for Warfleigh, Sect. A, INDIANAPOLIS, IND. Bd. Sanitary Comrs., 421 N. Pennsylvania St., Indianapolis, Ind. Bids Nov. 6. CD 10/15;
Central Engineering & Constr. Co., Peoples Bank Bldg., Indianapolis, Ind., LB $453,973, est. $500,000, Orange St. storm sewer area between Prospect St., Cottage Ave., Vandeman St., and Grant Ave., (Indianapolis, Ind.). CD 10/14.

▲ Michigan Sewer Constr., 21720 W. Eight Mile Rd., Detroit 41, Mich., CA $3,949,715, Eight-Mile Rd. Storm Drain, Southfield and Oak Park, incl. 111 lin. ft. 12 ft. open cut storm drain, 18,617 lin. ft. 3 ft. 6 in. to 12 ft. tunnel storm drains, 304 lin. ft. 3 ft. 6 in. open cut storm drain, 13 each manholes, 2 each junction chambers, 6 each drop inlets, PONTIAC, MICH. Oakland Co. Drain Comr., 550 So. Telegraph Rd., Pontiac, Mich. Bids Sept. 18. CD 10/3, under LB.

BUILDINGS—LB & CA

▲ Beatty Constr. Co., Inc., P.O. Box 2056 Kettering Branch, Dayton, O. CA $1,500,000, 175 one story, 1,050 sq. ft. basmtless houses, Summerside Rd., near CINCINNATI, O. Superior Development Co., c/o Larry Beatty, P.O. Box 2056, Kettering Branch, Dayton, O. Byron Barbeau, Batavia, O., engrs. Awarded Nov. 12.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 4 Kansas — December 10 Texas
December 17 South Dakota

STREETS AND ROADS

December 4, 5 Kansas — December 9, 10 Texas
December 17 South Dakota

▲† South Dakota—BA 12/30—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., furnishing power structure intake gates and frames, near Pierre, Oahe Reservoir Proj., ENG-25-066-59-48. $1,200,000-$1,800,000. CD 9/23.

BUILDINGS—BA

▲ Colo., Denver—CENTRAL BRANCH Y.M.C.A.—BA 12/2—Young Men's Christian Assn., 25 E. 16 Ave., addn. to existing Central Branch Y.M.C.A., 125 x 150 ft. on 1st 3 stories, 40 x 150 on top 5 stories, incl. swimming pool, $1,200,000. Simon & Hipp, 1922 E. 18, archts. CD 3/1/57.

▲ Neb., Omaha—HOSPITAL—BA 12/18—Bd. Regents, Duane Johnson Administrator, University of Nebraska, hospital addn. to University of Nebraska State Hospital. $2,200,000. John Latenser & Son, 1307 Farnam St., Znee 2, archts. CD 10/24/52.

▲† N. M., Los Alamos—OFFICE, etc.—BA About 1/29—Atomic Energy Comn., Los Alamos Area, 1 story combination office, laboratory and industrial type bldg., IFB 291-59-4, $1,000,000-$1,300,000, CD 9/22.

HEAVY CONSTRUCTION—LB & CA

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,
O. W. Swanson Constr. Co., 550 South Snelling Ave., St. Paul, Minn., CA $710,751, concrete paving and shouldering 3.8 mi. between 4 mi. north of Rochester and West Jct. TH 14, Olmsted Co. Bids Oct. 17. CD 11/7, under LB.

▲ MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,
Park Constr. Co., Inc. and Associated Engineers & Constructors, Inc., 51 37th Ave. Northeast, Minneapolis, Minn. (joint venture), CA $1,900,725, sand-grav. subbase, grav. base, concrete paving, plant mixed bit. surf. and bridges 2.2 mi. between 310 ft. south Little Canada Rd. and South End of Northern Pacific Co. overhead on T.H. 35 and between south end of Northern Pacific Railway Co. overhead to 820 ft. west of jct. with T.H. 49 (Rice St.) North St. Paul (11 projects in one contract) all in Ramsey Co. Bids Sept. 26. (Correction—contractors' address). CD 11/12, under CA.

▲ MISSOURI—State Hy. Dpt., Jefferson City,
Mo.—Reno Constr. Co. & Swenson Constr. Co., 135th St. and 69 Hy., Kansas City, Mo., CA $1,250,468, two-24 ft. concrete pavement 4.018 mi., Boone Co.;
Mo.—Cameron, Joyce & Co., 19 South 7th St., Keokuk, Iowa, CA $788,469, 24 ft. concrete pavement 6.429 mi., New Madrid Co.; CA $105,446, 24 ft. concrete pavement 0.568 mi., New Madrid Co. CD 11/7, under LB;
Mo.—St. Louis Co. Bridge & Grading Co., 7929 Alabama Ave., St. Louis 11, Mo., CA $2,952,923, two 24 ft. concrete pavement 8.771 mi., St. Louis Co.;
Mo.—Carte Bros. Constr. Co., Inc., P. O. Box 512, West Plains, Mo., CA $116,902, stabilized aggreg. base variable width, bit. material surf. 0.945 mi., Howell Co. CD 11/7, under LB. Bids Oct. 30. Grand total $5,214,208.

BUILDINGS—LB & CA

▲ E. R. Conry Co., 2828 Harriet Ave., Minneapolis, Minn., CA $1,500,000, 280,000 sq. ft. WAREHOUSE, near Hy. 100 and Wayzata Blvd., ST. LOUIS PARK, MINN. Gamble-Skogmo, Inc., 15 North Eighth St., Minneapolis, Minn.

McCarthy Bros. Constr. Co., 4903 Delmar Blvd., St. Louis 8, Mo., CA $984,940, Proj. MO-5-1, sixteen frame, masonry, etc. 100 unit APARTMENTS and COMMUNITY BLDG., KINLOCH (SOUTH KINLOCH PARK P.O.), MO. Kinloch Housing Auth., 305 Lix Ave. and P.O. Box 178, Kinloch, Mo. Bids Oct. 31. CD 11/11, under LB.

▲ Hankins Constr. Co., 7818 Forsyth Blvd., Clayton 5, Mo., CA $646,743, general constr. 2 story JUNIOR HIGH SCHOOL, Lockwood and Plymouth Aves., WEBSTER GROVES (ST. LOUIS 19 P.O.), MO. Bd. Educ. School Dist. of Webster Groves, 16 Selma Ave., Webster Groves 19, Mo. Bids Oct. 30, CD 11/7, under LB;
Gamble Constr. Co., 5730 Wise Ave., St. Louis 10, Mo., CA $916,353, general constr. 1 and 2 story campus style JUNIOR HIGH SCHOOL, Brownhurst Lane and Rock Hill Rd. (Webster Groves, Mo.).

Shelton & Son, 910 G. Saddle Creek Rd., Omaha, Neb. CA $742,000. Benson HIGH SCHOOL addn., OMAHA, NEB. Bd. Educ., 39th and Davenport St., Omaha 31, Neb. Bids Nov. 5, awarded Nov. 10. CD 10/23.

Morley Constr. Co., 7700 Sunset Blvd., Los Angeles, Calif. CA approx. $750,000. 6 story, penthouse, steel, glass, etc. MEDICAL OFFICE, EL PASO, TEX. Morley Benjamin Trustees, 7700 Sunset Blvd., Los Angeles, Calif. CD 1/2.

▲ Verne Harris & Ken Boggess, Builder, 8740 Linkterrace St., Houston, Tex. Owner Builds. $1,100,000. 140 unit APARTMENT program, Kapri Lane, Woodside Plaza off Stella Link Rd., HOUSTON, TEX. CD 10/23.

Austin Bldg. Co., Box 1590, Dallas, Tex. CA $710,095. Base Bid, J. L. Bates Electric POWER STATION Unit 1 at Bates, MISSION, TEX. Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, Tex. Bids Sept. 30. CD 10/8, under LB.

Craftsmen Constr. Co., 1337 East 18 Ave., Denver, Colo., LB $789,367, est. $700,000 2 story, 55,000 sq. ft. 13 classroom, JUNIOR HIGH SCHOOL, BOULDER, COLO., School Dist. No. 3, 1400 Walnut St., Boulder, Colo., Bid Nov. 7, CD 10/15.

▲ Quilland & Adams, 5110 S. Santa Fe Dr., Littleton, Colo. CA $1,000,000, 3 story, hsmnt. 120-bed HOSPITAL, LAKEWOOD, COLO. Lincoln Hospital, Inc., 1375 Overhills Rd., Lakewood, Colo. Broyles-Newman-Fensten, 9555 Montview Blvd., Denver, Colo., engrs. CD 7/25.

▲† C. H. Leavell & Co., 1900 Wyoming St., El Paso, Tex. CA $1,570,000, constr. NIKE-ZEUS DEVELOPMENT FACILITIES at White Sands Missile Range, LAS CRUCES, N. M. U. S. Eng., P. O. Box 1538, Albuquerque, N. M. CD 9/5.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 17, 18 California

STREETS AND ROADS

December 9 Idaho — December 17, 18 California

HEAVY CONSTRUCTION—LB & CA

▲ OREGON—State Hy. Comn., Hy. Bldgs., Salem, Bids opened 11/12,
Ore.—E. L. McNutt Co., 3511½ E. Broadway, Eugene, Ore., LB $564,500 (16 bidders) grading 2.97 mi. Josephine County line-Evans Creek section Pacific Hy., FAIP I-5-1 (7)50, Jackson Co.; LB $521,084 (22 bidders) grading, oiling 7.94 mi. John Day Hy., FAP F-64(3), Wheeler Co.;
Ore.—Coos Bay Dredging Co., Box 217, Coos Bay, Ore., LB $606,722 (4 bidders) grading, paving 1.24 mi. 437 ft. concrete bridge Oregon Coast Hy., FAP F-109(9), Coos Co.;
Ore.—Peter Kiewit Sons Co., Box 531, Vancouver, Wash., LB $1,161,017 (4 bidders) paving 2.97 mi. southwest 11 Ave.-Tigard interchange unit, Harbor Drive-Washington County line section of Baldock Freeway, FAIP I-5-6(13) 295, Multnomah Co. CD 11/5.

▲ CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 11/13,
Calif.—Winston Bros. Co., 1532 S. California Ave., Monrovia, Calif., LB $1,467,980 (9 bidders) separation structures and interchange facilities, San Bernardino Freeway west of Colton, incl. 4 bridges to carry local roads over freeway and adjacent railroad tracks plus realignment of freeway at interchanges to provide room for on and off ramps, San Bernardino Co. CD 10/16;
Calif.—Jack L. Adams Constr. Co., P.O. Box 804, Banning, Calif., LB $211,350 (13 bidders) bridge parallel to existing bridge over Santa Ana River, FAS Co. Rd. 702 (Van Buren Blvd.) near Pedley, Riverside Co. CD 10/16.

▲ H. C. Smith Constr. Co., 3900 Rowena Ave., Los Angeles, Calif., LB $1,414,666 (10 bidders) constr. Storm Drain Proj. No. 8, Guirado Ave., Whittier, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Nov. 14. CD 11/10.

▲E. A. Irish Co., Box 39701, Griffith Station, Los Angeles, Calif., CA $6,562,895, constr. portion third sections San Diego Aqueduct 16.8 mi. of 66 and 69 in. pipe. spec. 203, SAN DIEGO, CALIF. San Diego Co. Water Auth., 2750 4th Ave., San Diego, Calif. Bids Nov. 7, awarded Nov. 13. CD 11/11, under LB.

BUILDINGS—LB & CA

▲ Kenaston & Huntley, Box 245, Lewiston, Idaho, LB $1,129,287 (8 bidders), general contract 2 story, 69x238 ft. CLASSROOM BLDG. and 1 story, 59x91 ft. ADMIN. BLDG. for Lewiston Junior High SCHOOL, and 2 story, 69x206 ft. CLASSROOM BLDG. and 1 story, 59x91 ft. ADMIN. BLDG. for Lewiston Orchards Junior High School, and 175x185 ft., masonry and frame GYMNASIUM-CAFETERIA BLDG. at each school, LEWISTON, IDAHO. School Bd., Lewiston, Idaho. Bids Nov. 13. CD 10/29;
Lewiston Plumbing, Heating & Sheet Metal Co., 0208 5 Ave., Lewiston, Idaho, LB $374,999 (3 bidders), mechanical contract, (Lewiston, Idaho).

▲ Lembke Constr. Co. of Nevada, Inc., Box 1391, Las Vegas, Nev. CA Est. $3,000,000. contract plus alternates CONVENTION CENTER, LAS VEGAS, NEV. Clark County Fair & Recreation Bd., Courthouse, Las Vegas, Nev. Adrian Wilson & Assoc., 816 5th St., Los Angeles, Calif., archts. CD 10/14/57, under LB.

▲ Brazier Constr. Co., 309 Pontius St., Seattle, Wash., LB $1,131,000 (2 bidders), Boeing MISSILE CENTER alterations, Phase III, SEATTLE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle 4, Wash. Harmon, Pray & Detrich, 2000 S Ave., Seattle 1, Wash., archts.

▲ Lindgren & Swinerton, 1631 Beverly Blvd., Los Angeles, Calif. CA $1,865,000. 24,000 sq. ft. FACTORY and LABORATORY BLDG., DOWNEY, CALIF. North American Aviation, Inc., Autonetics Div., 9150 E. Imperial Hy., Downey, Calif. Bechtel Corp., 4620 Seville Ave., Huntington Park, Calif., archts.

▲ James-Cedric Constr. Co., 9772 Kattelia Ave., Anaheim, Calif. CA $1,004,100. 104 frame, stucco DWELLINGS, LA PUENTE, CALIF. H. C. Roberts & J. C. Roberts, 9772 Kattelia Ave., Anaheim, Calif.

▲ Heers, Bros., Inc., 6370 Magnolia Ave., Riverside, Calif. Owner Builds. $1,200,000, 53,200 sq. ft. APARTMENT 6967-79 Palm Ave., RIVERSIDE, CALIF.

Louis C. Dunn Co., 681 Market St., San Francisco, Calif., LB $844,000 (8 bidders) Longfellow ELEMENTARY SCHOOL, Morse and Lowell Sts., SAN FRANCISCO,

CALIF. City and San Francisco Co., Dpt. P. Wks., Room 282, City Hall, San Francisco, Calif. John Carl Warnecke, 111 New Montgomery, San Francisco, Calif., archt. Wiloman & Morris, 111 New Montgomery St., San Francisco, Calif., engrs. CD 11/9/56.

▲ **M&K Corp.**, 519 California St., San Francisco, Calif. CA **$12,508,500**, general constr., contr. incl. plumbing, mechanical, electrical, air conditioning ventilation for 7 story and ground floor 637,000 sq. ft. floor area concrete HALL OF JUSTICE with marble facing with an adjacent 1 story and roof deck parking structure bounded by 7th, Harriet, Bryan and Harrison St., SAN FRANCISCO, CALIF. City and San Francisco County, Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Nov. 5, awarded Nov. 18. CD 11/10, under LB.

Peter Sartorio, 140 Reiner St., Colma, Calif. CA **$759,502**. Catholic CHAPEL and 3 story maximum security cell block 24,000 sq. ft. isolation-segregation bldg. at San Quentin State Prison, SAN QUENTIN, CALIF. State Div. Architecure, 1120 N. St., Sacramento, Calif. Bids Oct. 28, awarded Nov. 14. CD 11/3, under LB.

Shepherd & Green Co., P.O. Box 1078, Stockton, Calif. LB **$824,000** (9 bidders) 30,000 sq. ft. Type I, brick, rein.-con. BANK on ½ acre site Miner Ave., San Joaquin and Linday Sts., STOCKTON, CALIF. Bank of Stockton, San Joaquin and Main Sts., Stockton, Calif. Bids Nov. 13. CD 10/31.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 10 British Columbia
STREETS AND ROADS
December 3, 17 Ontario

BUILDINGS—BA

▲ **N. S., Halifax**—HOTEL WING—BA 12/10—Canadian National Railways, 355 McGill St., Montreal, Que. 10 story, 165 room air-conditioned Nova Scotian Hotel, Hollis St. $4,000,000. Plans deposit $200.

BUILDINGS—SLC

▲ **B. C., North Vancouver**—HOSPITAL—North & West Vancouver Hospital Society, soon lets contract, 5 story, 18,800 sq. ft. rein.-con. 283-bed hospital, 13th and St. George St. Over $5,000,000. Extended date. Underwood, McKinley, Cameron, 1264 W. Pender St., Vancouver, archts. CD 10/28.

HEAVY CONSTRUCTION—LB & CA

ALBERTA — Alberta Government, Parliament Bldgs., Edmonton,

Shannon Constr. (Alta.) Ltd., Didsbury, Alta. CA **$937,-725**, grading, etc. 42 mi. Hy. 35 from Kemp Creek to north of Metis settlement. Awarded No. 5. CD 12/1/43.

BRITISH COLUMBIA—B. C. Government, Parliament Bldgs., Victoria,

New West Constr. Co. Ltd., Edmonton, Alta. and **George Ludwig Ltd.**, Calgary, Alta., CA **$798,511**, constr. 26.6 mi. Tanzilla River-Stikine River section of Cassiar Rd., Atlin Electoral Dist. Awarded Nov. 4.

Smith Bros. & Wilson, Ltd., 2135 6th Ave., Regina, Sask., CA **$738,179**, headquarters bldgs. for South Saskatchewan River Dam and irrigation proj., near town of Elbow, SASKATCHEWAN. Dpt. Agriculture, Prairie Farm Rehabilitation Admin., G. L. McKenzie, dir., 504 Motherwell Bldg., Regina, Sask. Bids Nov. 13. CD 10/29.

BUILDINGS—LB & CA

▲ **Dominion Constr. Co. Ltd.**, 195 W. 2 Ave., Vancouver, B. C. CA **$1,500,000**, design and construct concrete, brick OAKRIDGE PLAZA, incl. business and professional offices, shops, two banks and pharmacy, VANCOUVER, B. C. Awarded Nov. 5. CD 3/14.

▲ **Louis Donolo (Ontario) Ltd.**, 2790 Dufferin St., Toronto, Ont. CA **$4,452,487**, 10 story, rein.-con. frame, POST OFFICE addn., St. Clair and Yonge Sts., TORONTO, ONT. Dpt. P. Wks., Hunter Bldgs., Toronto, Ont. CD 9/22, under LB.

Eastern Constr. Co. Ltd., 516 Mount Pleasant Rd., Toronto, Ont., CA Est. **$900,000**, SHOPPING CENTER, south of Lawrence Ave. E., west of Don Mills, TORONTO, ONT. Don Mills Development Ltd., Don Mills, Ont. Fisher, Tedman & Fisher, 623 Sherbourne St., Toronto, Ont., archts. Reicher, Bradstock & Assocs. Ltd., 612 Sherbourne St., Toronto, Ont., engrs. Awarded Nov. 11.

▲ **Hurley-Gregoris Constr.**, 321 Bloor St. E., Toronto, Ont., CA **$1,972,643** (8 bidders), LAWRENCE HEIGHTS LOW RENTAL HOUSING PROJ., incl. 191 row housing units and 24 semi-detached units, Lawrence Ave. W. between Bathurst St. and Dufferin St., TORONTO, ONT. Ontario Dpt. Planning & Development, Queen's Park, Central Mortgage & Housing Corp., 650 Lawrence Ave. W., and Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids Oct. 28, awarded Nov. 12. CD 10/10.

LATIN AMERICA

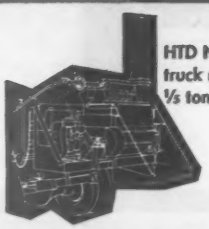
HEAVY CONSTRUCTION—LB & CA

▲ **Utah Constr. Co.**, 100 Bush St., San Francisco, Calif., U. S. A., CA Est. **$6,250,000**, hydro electric plant on Macharanga River, incl. power plant addn., 5 mi. tunnel, 11.5 mi. diam. intake structure, penstocks and surge tank, ECUADOR, Empresse Electric "Quito" S. A. Auito, Ecuador. CD 10/29/57.

(Proposal Advertisements see pp. 87 to 89)

FOR LOW-COST HOT OR COLD
PAVING OR PATCHING IN ANY SEASON

McConnaughay
ASPHALT MIXERS



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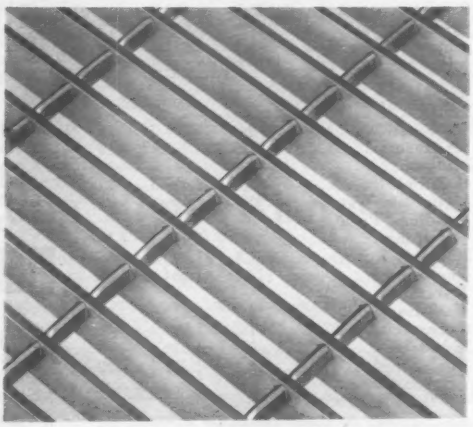
NEW!
Gary-Galok* SUPER
ALUMINUM GRATING



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- Cross bars can't turn, come loose or fall out.
- All sizes—¾" x ⅛" to 2¼" x 3/16".
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- Available in plain or serrated main bars.

*Patents Pending

You'll want full details about this aluminum grating. Write for Bulletin E-118

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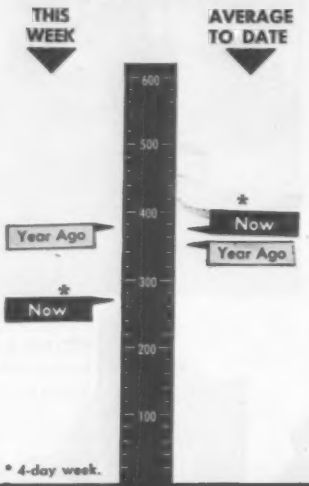
Construction Scoreboard

ACTIVITY THIS WEEK

Contract Awards
Millions of Dollars

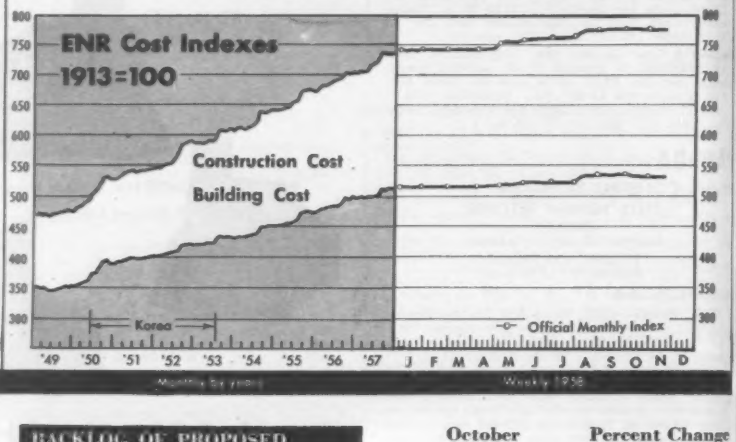


COST INDEXES AS OF NOW

ENR INDEXES (1913=100), 20-cities' average	Week of Nov. 20 1958	% Change from Oct. 1958	% Change from Nov. 21 1957
Construction Cost	774.09	+0.02	+5.10
Building Cost	535.07	−0.02	+3.66

"Official November Indexes appeared here Nov. 6; Official December Indexes will appear here next week.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.000; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



AMOUNT OF CONTRACTS LET

By Ownership	This Week*	Cum. 48 wks 1958 millions	Chge '57-'58 %
All Heavy Constr.	$273.0	$17,812.8	+5
Private	113.1	7,167.9	−10
Public	159.9	10,644.9	+17
State & Municipal	143.9	7,971.0	+15
Federal	16.0	2,673.9	+25
By Type of Work			
Public			
Waterworks	9.6	284.0	−16
Sewerage	11.5	562.9	+10
Bridges†	9.0	664.8	−10
Highways	65.8	3,423.0	+23
Earthwork, Waterways	2.9	986.0	+4
Buildings, Excl. Housing	46.5	2,440.3	+11
Housing	1.8	1,009.5	+66
Unclassified	12.8	1,284.6	+35
Private			
Mass Housing	56.3	3,449.5	+20
Commercial	41.2	1,695.9	+3
Industrial	9.5	1,630.6	−45
Unclassified	6.1	381.7	−22

* 4-day week.
† Inludes private bridges.

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Nov. 20	Cum. 47 wks 1958 millions	Chge '57-'58 %
Corporate Securities	$32.2	$4,693.5	−14
State and Municipal:			
All Except Housing	114.0	5,675.3	+10
Housing	1.0	115.5	−26
Federal Loans	1.2	186.1	+1
Federal Aid	...	2,596.2	+20
Total Nonfederal	$148.3	$13,266.6	+1
Federal Appropriations:			
Projects in U. S.	...	$3,946.1	+42
Outside U. S.	...	35.2	+21
Total New Capital	$148.3	$17,247.8	+8

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	October 1958 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$113,332	+0.6	+2.8
By Ownership—			
Private	48,667	+0.5	+4.7
State and Municipal	50,469	−0.9	+1.2
Federal	14,195	+0.9	+1.9
By Type of Work—			
Waterworks	2,672	+0.8	+13.0
Sewerage	3,451	+0.3	+4.3
Bridges	3,386	+2.0	+3.6
Highways	13,102	+1.4	+2.2
Earthwork, Waterways	11,946	−0.5	−3.9
Public Buildings	20,449	+1.2	+1.7
Industrial Buildings	16,619	+0.7	−0.4
Commercial Buildings	22,098	+0.5	+10.5
Unclassified, Private	9,950*	+0.1	+1.4
Unclassified, Public	9,659	−0.1	+1.6

* Includes private bridges, $83 million

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1958 Oct. (millions)	1958 10-months (millions)	Percent Change from '57 Oct.	Year Cum.
Total U. S. (ENR reported)	$1,834	$13,765	+ 5.3	−22.1
By Ownership—				
Private	608	5,702	−25.6	−27.4
State and Municipal	930	5,904	+16.6	−27.1
Federal	296	2,160	+133.6	+32.7
By Type of Work—				
Waterworks	35	438	− 8.6	+12.1
Sewerage	54	530	−11.9	+ 7.0
Bridges	100	391	+262.7	−25.9
Highways	404	1,621	+106.3	−17.7
Earthwork, Waterways	62	621	−46.0	−61.1
Public Buildings	507	3,412	+14.2	− 8.8
Industrial Buildings	181	1,074	−51.3	−62.3
Commercial: Mass Housing	206	1,853	+43.0	− 1.5
Other Building	188	2,424	− 2.8	+11.1
Unclassified, Private	33	349	−69.7	−62.7
Unclassified, Public	64	1,050	+98.1	− 3.5

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	890	8,798	+ 4.6	+ 7.1
By Ownership—				
Private	205	2,405	−41.1	−22.7
State and Municipal	529	4,760	+26.3	+20.8
Federal	155	1,633	+87.7	+40.6

Will Integration Slow School Building?

Investors are reacting differently to Southern school bonds; some buy them quickly, others won't take them

The issue of Southern school integration is resulting in some second thoughts on the future of school construction in that region.

Investors and investment brokers are giving the problem close scrutiny. They are the ones who provide the money to pay for construction.

Some authorities think construction of new schools will not be drastically or immediately cut. Others think a slowdown is already being felt.

New York City investment brokers don't think dollar volume of school bond issues in the South will be curtailed by the integration crisis.

As one broker puts it, "The population down there will keep growing, integration or not. No matter how you arrange it—whether you put white and Negro kids together, or keep them separated—you still need more schools for them."

A Georgia broker gives another reason for continued construction. "A large percentage of Southern municipal bonds, such as Atlanta's or Richmond's, are high-grade, double 'A' bonds. Who cares what's being built when the rating reads that way?" School construction bonds in Georgia are well-protected, he explained. The dollar volume of bonds issued cannot exceed 7% of the community's assessed property value.

• **Higher interest rates**—The crisis will affect one thing, however. Brokers generally agree the dispute will hike interest rates on Southern school bond issues sold outside the South. Southern investment firms estimate the increase at about ¼ of 1%.

Increased interest rates could eventually have an effect on the volume of bonds issued. Some brokers believe attracting investors to a trouble area might require higher interest rates than those allowed by statutory limits. Furthermore, high interest rates could raise the tax burden so much that voters in the South would be unwilling to authorize more school bond issues.

• **Some against bonds**—Emotional turmoil and acts of violence in Southern communities have created an uncertainty among some investors. Except in New York City, Southern municipal bonds have not sold readily in the North and West because of this added risk. And there are some nationally known brokerage houses that will not recommend these bonds to clients.

On the other hand, school construction bonds are quickly and easily marketed at the local level in the Southern states. In fact, issues of less than $500,000 are generally bought within the home state. This is possible because personal incomes have risen.

Larger issues usually require some out-of-state support.

While some Southern communities, such as Little Rock, have threatened to set up private schools, they could not be financed by community or state-backed bonds.

Should private school systems evolve to any great extent, construction volume in this field could rise sharply. Or, if private systems bought existing public schools from the cities, new schools would still have to be built to serve growing numbers of students. But means of financing would have to be developed.

Most brokers agree that private school systems in the South would be extremely difficult, if not impossible, to finance.

• **Slowdown here?**—There are some bankers and brokers who disagree with the general belief that school bond issues will remain unaffected by the present crisis.

A prominent Virginia banker says, "Many communities are holding up on their school expansion plans, looking for a break in the present stalemate. They've adopted a wait-and-see attitude before they commit themselves to more school construction."

Other Southern bond dealers agree. "The bulk of the present issues we're handling are for improvements and additions, not new schools," according to an Atlanta broker.

Both groups—those who foresee a segregation effect on school bonds and those who don't—are guessing. They're guessing because no one—Northerner or Southerner, Negro or white, knows what's going to happen.

It appears right now that attitudes are hardening. Last week Norfolk, Va., conducted a special advisory referendum. Voters were asked whether the City Council should petition Gov. J. Lindsay Almond, Jr., to return control of six Norfolk schools to local authorities for operation on an integrated basis. Of the 20,512 ballots cast, 12,340 registered "No." And this in a city that has a relatively large number of non-Southern residents.

Private Building Plans Rising

There is a big upswing in the volume of proposed industrial building. It is part of a stepup in volume of proposed private construction.

That's the picture presented by ENR's Backlog of Heavy Construction in the planning stage. The pressure is mounting and should be sufficient to lift private heavy construction contracts out of the doldrums sometime early next year.

During the first three weeks of November, private projects proposed had a total estimated cost of $523 million. The final week's total probably will top that of October. If so, it will mark the fourth consecutive monthly rise.

In the same three weeks, proposed industrial building surged to $155 million. The full month may top October's $181 million. And October's volume was double the average monthly volume during April through September.

Recent surveys of spending plans and appropriations by industry have indicated the end of the drop in outlays for new plant and equipment.

Capital outlay plans of industry have been revised upward since last spring. Estimated outlays are now more than $33 billion, according to McGraw Hill's Department of Economics. Last spring, industry estimated its 1959 outlays at $31.3 billion (ENR Nov. 13, p. 113).

ENR's reports are the first to spot a rise in plans for industrial construction alone.

The rebound in total private heavy construction entering the planning stage cannot be considered sensational when measured on a dollar basis. However, it does point to a rise in future private awards.

The increase will have to carry much higher before contracts can be expected to reach the 1957 rate, let alone the 1956 record volume.

(*B&F continued on page 82*)

Liberal Housing Bills Coming

Democrats have big plans for housing and urban renewal; cheaper credit and more are likely

Newest slogan in the political vocabulary of some congressmen is, "A home for every American family."

That cry is already being sounded by leading Democratic senators and representatives.

Only the threat of a Presidential veto stands in the way of passage of several housing measures next year by a strong Democratic majority. They will cover housing in all of its aspects: private, public, urban redevelopment, and college.

The subject will get quick attention when the new Congress convenes in January. With both houses strongly controlled by the Democrats, chances are good that most of the bills will be considered as liberal.

• **Separate packages**—One of the moves that is being pushed is the discard of the "omnibus" housing bill. The National Association of Home Builders is behind this. In past years, such a bill covered all phases and offshoots of housing—private, public, urban redevelopment. The measure failed to clear Congress last year because of Administration opposition to several provisions unrelated to private housing.

NAHB, the National Association of Real Estate Boards and the National Association of Housing and Redevelopment Officials were hurt.

And Senator John Sparkman (D., Ala.), chairman of the Senate's housing subcommittee, expressed disappointment. This year, action involving private housing, urban renewal, public housing, and college housing may be presented separately.

• **Cheaper credit indicated**—Among the major items in Democratic housing legislation will be easier financing of houses sold under Federal Housing Administration and Veterans Administration provisos.

Senator Sparkman practically promised this in recent talks. He told a meeting of the Mortgage Bankers Association that the housing "tool that needs sharpening most, and about which I have greatest concern, is the financial one. I believe mortgage financing is the most important factor in achieving our goal." Earlier he said the goal was "A home for every American family. . . ."

• **More Treasury funds?**—There is also a possibility that Congress will go back to subsidizing homebuilders in the low-cost field through the Federal National Mortgage Association (Fannie Mae).

At the MBA session, Mr. Sparkman called the emergency housing bill of April 1, "a very successful law." He credited it with boosting housing and stimulating the economy.

Chief provision of the emergency bill authorized Fannie Mae to buy at par $1 billion of VA and FHA-backed mortgages up to $13,500 each. The funds were committed in less than five months. Fannie Mae will purchase the mortgages as the houses are delivered to buyers.

The money will come from the U.S. Treasury. It will be part of the $12 billion deficit anticipated by the government in this fiscal year. In this buying operation, the government will be paying a fixed price for something selling for less on the open market.

Last week Senator Sparkman defended this $1 billion subsidy. He did say, however, that it was basically an emergency measure. He said it was primarily intended to help boost employment through stimulation of housing construction; it was not intended as a permanent form of financial assistance.

However, should unemployment early next year be around 4.5 million or 5 million, would Congress feel compelled to repeat the Fannie Mae emergency action? Some economists are now predicting that unemployment will reach the 5 million level during the winter.

More expensive housing can also be expected to get the full cover of FHA financing. President Eisenhower recommended this year that the maximum allowable FHA mortgage be raised to $30,000 from the present $20,000. The Democrats agree on this point.

• **Where they disagree**—But they are not agreed on freeing interest rates completely.

Senator Sparkman and other Democratic members of both houses are opposed to removing these ceilings.

Members of the executive branch have been outspoken in favor of it. Among them is Raymond J. Saulnier, chairman of the President's Council of Economic Advisers.

Speaking to a mortgage bankers group, Mr. Saulnier called attention to the lack of stability in the government-backed mortgage money market that results from the fixed interest rates. He said the inflexibility of this segment of the mortgage credit field is "no comfort at all to the Council of Economic Advisers," and "we would all be better off if the flow of funds into home financing were less erratic."

• **Urban renewal differences**—The president and Congress will have some sharp exchanges over urban redevelopment.

The Administration continues to push for less federal aid to cities in this program. But strong forces are pushing for larger contributions both in dollars and percent of participation.

The National Association of Housing and Redevelopment Officials is pressuring for $600 million annually for 10 years in federal urban renewal grants. It also wants the federal share of participation raised from its current two-thirds to 80%.

Conservative elements within the Democratic Party may be able to slow down the spending surge. But there is better than an even chance federal participation will remain at its present level.

The money provided for capital grants may also be generous. It may not be as much as some want, but it will be more than the Administration is willing to spend.

Atomic Power Plant To Be Built in Alaska

Site investigations have been completed for a $20 million atomic power reactor in Anchorage, Alaska. Work is expected to start in 1961.

The Atomic Energy Commission will finance the installation with a $20 million grant. The plant will produce about 10,000 kw when completed in 1963.

The reactor will be of the sodium deuterium type. It will operate on a 200 degree temperature rise in sodium which moves through heat exchangers to provide steam for use in power generation.

The reactor will be housed in a heavy concrete building with a steel shell cover. A larger plant will be built later if the first unit works out.

The reactor is being constructed for the Chugach Electric Association. The Nuclear Development Corp., White Plains, N. Y., will build the plant. Burns & Roe, New York City, will design it.

Here's Promotion With a View to Sales

Future occupants of an 18-story apartment building in San Francisco will know what the view is like before the structure is complete.

The builder had color photographs taken from a 140-ft crane at levels equal to the height of each floor. The pictures will let prospective occupants choose a view to their liking.

The $10 million, luxury building is planned as a cooperative ownership project.

Indians May Block Niagara Job

A legal struggle over Tuscarora Indian land threatens to bring construction of New York State's $700 million Niagara Power Project to a halt by January.

Robert Moses, chairman of the New York State Power Authority, warned last week that $100 million in temporary financing will be exhausted in two months.

He said the project cannot be permanently financed through bond issues while rights to the reservoir site are still in litigation.

The Power Authority is seeking about 1,400 acres of the Tuscarora reservation for use as part of a pumped-storage reservoir. The Indians have refused a $1,200-per-acre offer and have contested all legal moves by the authority to acquire the land (ENR Sept. 18, p. 15).

Earlier this month, the Circuit Court of Appeals of the District of Columbia cast doubt on the Power Authority's Federal Power Commission license as it affects Indian land. The court returned the issue to the FPC to determine whether the license could be amended to provide that use of the tribal lands will not be inconsistent with the purpose for which they were originally reserved.

The reservoir could be moved from Indian land to nearby private property, but the shift would increase basic construction costs by $15 million, Mr. Moses estimates. Delays in permanent financing and delivery of power further increase expenses. The authority would also be liable for damages caused by work already undertaken on the reservation under terms of temporary court orders.

If the FPC decides the license can be amended to provide for use of the Indian reservation, the appellate court will still have to rule on the legality of the provision. And the court's decision could be appealed to the Supreme Court.

Mr. Moses said $400 million of work the Power Authority is committed to must be abandoned unless the needed land is acquired quickly.

Congress could permit use of the Indian land, but the NYSPA has expressed an unwillingness to seek such approval.

Inquiry Warms Up

Oklahoma legislators give road facts to grand jury

A special legislative committee investigating law violations by county road commissioners in Oklahoma has turned over some of its findings to a grand jury.

The material is only a portion of the information concerning alleged widespread abuses and mismanagement by county road commissioners. The committee did not reveal names or facts given to the grand jury.

The special committee's full report and recommendations resulting from its two-month inquiry have been approved by the executive committee of the Oklahoma Legislative Council.

The special committee urged sweeping reforms in the state's county commissioner system. These include a constitutional amendment creating a new Department of Examinations, Inspections and Audits. The committee says this would provide a closer check on county spending and assure prosecution of law violators.

Other recommendations:

- Election of county commissioners on an at-large basis instead of from districts. This would compel them to act as a unified board rather than in the interest of the three separate districts.
- Establishment of a bonded central purchasing agent for all county officers.
- A new statute to replace an existing competitive bid law.
- Requiring every county to employ a full or part-time licensed civil engineer to supervise road construction, maintenance and planning.

The recommendations would eliminate many of the poor business practices uncovered by the investigation, the committee says.

Under existing procedure there is no check on road materials purchased or delivered. It was found that some counties were paying prices 20% to 30% higher than private buyers of the same materials (ENR Nov. 20, p. 104).

More than half the state's 77 counties are building roads without engineering advice, the report states. This results in premature road repair.

The committee also criticized the present system of county attorney offices. It said that when violations were uncovered at the county level by representatives of the state examiner's office, the county attorneys rarely took action. The committee suggested that the county attorney system be eliminated and replaced by a district attorney system.

Stage Set for Boycott Curbs

McClellan committee attempts to show that present law cannot effectively handle secondary boycott activity

The Senate Rackets Committee last week blueprinted a series of labor secondary boycott cases as the basis for proposals aimed at tightening federal legislation on labor unions.

The eight-man investigating committee, headed by Sen. John L. McClellan (D., Ark.), delved into building trades union boycotts especially, concentrating on the now-famous Burt Manufacturing case, and teamster "hot cargo" operations in the trucking industry.

But despite the public airing the disputes are no nearer solution.

The hearings left some senators on the committee determined to write tight secondary boycott bans into any new labor reform bill coming before the 86th Congress next year.

The alignment of witnesses also indicated that the AFL-CIO industrial unions have not abandoned what the building trades unions call a "smoke screen" to divert attention from unlawful invasion of building trades' jurisdiction. This is apt to create considerable dissension in the federation when it comes to drafting legislative proposals.

• **The Burt case**—The complexity of the boycott problem was underscored in a full day's testimony on problems of the Burt Co. A union witness admitted at the end that he sees no way to end the fight. He was William O. Frost, business manager of Akron Sheet Metal Workers Local 70.

The sheet metal workers have resisted handling Burt equipment in construction projects ever since Burt was organized by the United Steelworkers of America. After the AFL-CIO merger in 1955 the boycott became "serious," according to Burt vice president F. C. Sawyer, another witness.

Both Mr. Sawyer and Mr. Frost agreed on the basic point: Sheet metal workers are resisting Burt products. But they disagreed otherwise.

Mr. Frost says Burt pays "substandard" wages of $2.10 an hour while the craft workers elsewhere receive $3.45 an hour. Mr. Sawyer counters that Burt pays "better than average wages."

The Burt Co., according to the building trades, is one of 75 sheet metal fabrication plants in the Akron area. These fall within the established work jurisdiction of the sheet metal workers, they say, and all but two of them have labor contracts with that union. The sheet metal workers tried unsuccessfully to organize Burt, which makes ventilating equipment, in 1941.

In spelling out the company's position before the committee, Mr. Sawyer cited three boycott tactics used by the union to resist handling Burt products.

- Pressuring architects drawing up construction plans not to specify Burt products among building materials to be used.
- Withholding union members from projects using Burt equipment.
- Threatening penalties or fines against workers handling Burt ventilator equipment.

So far, according to Mr. Sawyer, these tactics have cost the company "between $3 and $4 million." He said between March 26 and 29, 1957, certain contractors decided not to handle Burt products in such cities as St. Louis, Pittsburgh, Cleveland, Boston, Washington, D. C., Detroit and Parkersburg, W. Va.

Mr. Frost declined to call the union practices a boycott. But he said the sheet metal workers do demand, in their contracts with employers, that they use ventilator equipment fabricated by the union's members. The craft union both fabricates and installs ventilator equipment.

The contract provision is a type not uncommon in the construction industry. It's similar to the fabrication clause in the national agreement between the plumbers union and the National Constructors Association. The law does not prohibit such contracts and does not restrict union pressure on employers to enforce the contracts.

• **Conflicting union positions**—Members of the United Steelworkers Union, which organized the Burt plant in 1946, are as much at odds with the sheet metal workers as is the Burt Co. In fact, they joined Burt in testimony before the McClellan committee. They accused the craft union of violating the AFL-CIO's jurisdictional peace pacts.

Last year, the AFL-CIO ordered the sheet metal workers to end their Burt boycott. AFL-CIO agreed with the steelworkers that it amounted to a violation of the no-raiding provisions of the AFL-CIO constitution.

Despite the federation's peace-making attempts, the craft and industrial unions are still at odds over the matter. And Mr. Frost claims that the sheet metal workers are "no longer interested" in the Burt plant.

McClellan committee chief counsel Robert F. Kennedy asked, in view of the sheet metal workers' disinterest in the Burt plant, what could be done to end the dispute. Mr. Frost replied: "I couldn't answer that."

He said his union was only interested in protecting the higher pay rates of the craft workers. The union has consistently denied that it is trying to organize Burt employees or raid the steelworkers union.

At the last regular convention of the AFL-CIO Building and Construction Trades Department, president Richard Gray said the proposed federation solution—ordering the sheet metal workers to stop the fight—amounts to asking the building trades unions to dig their own grave.

It would be a green light to industrial unions to raid the jurisdiction of the building trades unions, he said, while the latter would be forced to promote the raiding by handling and installing the products they produced.

• **Law is vague**—Mr. Sawyer had claimed earlier that the Taft-Hartley Act provides no solution in its secondary boycott section, which is vague on the pressure a union can use against a neutral employer in furthering its dispute. Burt attorneys advise the company, Mr. Sawyer said, that "there is little hope of success in filing lawsuits; that the boycott provisions of Taft-Hartley are ineffective because of many loopholes."

One of the loopholes is that union action taken directly against employers is not an unlawful secondary boycott.

The committee also delved into teamster boycott practices, particularly the "hot cargo" device.

The sheet metal workers boycott is of this variety. It involves pressure by the union on an employer through a labor contract in which the employer agrees not to handle goods banned by the union. In the sheet metal workers case, the "hot cargo" is Burt products.

For the teamsters, the practice is usually to demand that a unionized trucker agree not to haul the products of a company the union is fighting.

Should Safety Be Bargained?

Negotiation of safety promotion may help fill the big gap between the theory and practice of safety

Safety, like sin, is a popular subject. Safety is easy to talk about but hard to do much about.

One reason is that most accidents are caused by workers' carelessness; and carelessness is hard to overcome when many workers feel the dominant issue is the contractor's pocketbook.

If the traditional friction between labor and management is a basic problem, collective bargaining may be one of the most effective answers to safety promotion.

This suggestion emerged out of the construction industry discussions held as part of the Governor's Conference on Occupational Health and Safety in New York last month.

• **The problem**—There is no quarrel over what the problem is. Most contractors and union workers know that the construction industry is the fifth most hazardous of all industries (ENR Oct. 30, p. 21). They know that about 2,600 construction workers—71 out of every 100,000—were killed last year, despite a vast improvement in the industry's accident record. They are familiar with both the financial and human costs of accidents.

They know, too, that experts consider only 9% of the accidents are due to hazardous conditions. All the rest—91%—are due to carelessness. They know the answer lies in education and in the development of safety consciousness. They know this is the joint responsibility of labor and management.

The real challenge, the record indicates, is how to get that responsibility exercised.

• **A solution?**—Edward Sullivan, assistant secretary of Turner Construction Co., made this suggestion at the conference:

"I recommend that the state labor organization propose to its various district and trade jurisdictions a plan by which safety becomes an essential for collective bargaining and a matter to be administered by the union-employer committees on safety at a trade district council or local level, whichever would be feasible."

Mr. Sullivan said that union labor is the "one element that is common to the great majority of construction employers in this state" and that it could have "a salutary influence," through its bargaining power, on accident prevention.

Voluntary participation in safety promotion, he indicated, is not enough. A recent survey, he said, shows that little use has yet been made of the bargaining process.

Neither Mr. Sullivan nor the other conference panelists who supported the idea were talking about labor contract clauses that merely recite the usual safety obligations of employers and workers.

It was suggested that labor contracts spell out the safety problem in detail and that they cover such items as these:

• Formation of a small joint labor-management safety committee in each trade to meet regularly and to deal with safety problems.

• Inclusion of both a foreman and a steward on the committee with specific authority over safety matters given to the steward.

• A stipulation that the safety provisions will be binding on subcontractors.

• A requirement that safety be an integral part of apprentice training.

• **Union attitudes**—It was obvious from the discussions that union attitudes may have a lot to do with the gap between safety theory and practice and that collective bargaining, by its very nature, might help in solving that problem.

Several union representatives at the conference viewed contractor interest in safety with skepticism. They came up with suggestions that included the licensing of contractors, heavier fines for contractor violations, limitations on the use of out-of-state contractors and on subcontracting, the hiring of only licensed operating engineers and a law against the use of chemically treated lumber in dock work.

Other union gripes are reflected in the following comments:

• Under present competitive practices the big culprits are the general contractor, who is merely a broker, and the speculator-builder. Brokers get their subs to make their "ten, twelve, fourteen percent."

"To do this, the sub has to push his men. And this means only one thing—safety conditions go out the window. A general contractor should be required to do at least 25% of the work he contracts for."

• "With the accent on continuous production for eight hours a day, the human factor involved in these jobs is lacking."

• "When the steward has to make a tour on the job and deviate from his particular post for half an hour, he should not be accused of featherbedding."

• "Some employers testifying at accident hearings don't even know what's going on."

• "On some jobs it's better to break your neck than to break a wheelbarrow."

• **Some tips**—Conference speakers, however, came up with a number of safety suggestions that can be applied regardless of how the chips may fall on the collective bargaining front. Among them are these:

• Thoroughly acquaint supervisory personnel with construction hazards.

• Train all employees to work safely.

• Plan safety at the beginning of each job.

• Include the safety factor in the budget of every job.

• Set up joint labor-management safety committees in every locality.

• Find out why your accidents happen and how they can be prevented.

• Insist on disciplinary action—even including dismissal—for worker violation of safety rules.

• Keep workers safety conscious through the use of printed media, such as posters, warning signs and safety reminders in pay envelopes.

The conference was sponsored by the Governor's Advisory Committee on Industrial Safety.

It reflected the consultative approach to safety introduced by the New York State Department of Labor two years ago. That approach is based on these principles:

"Investigate rather than inspect, consult rather than command, persuade rather than order and sell rather than enforce."

Construction panel speakers included, in addition to Mr. Sullivan, Charles Rizzi, of Rizzi Construction Co.; Peter Brennan, president of the New York State Building and Construction Trades Council; and Walter Maxim, president of the Watertown Building and Construction Trades Council.

(*Labor continued on page 86*)

Court Approves Brown-Olds Rule

It's the first legal test of the labor board's remedy to compel changes in industry hiring practices

The U. S. 10th Circuit Court of Appeals in Denver has upheld the validity of the controversial Brown-Olds remedy.

It has approved a National Labor Relations Board ruling that requires a company and a union to refund union dues and assessments collected under an illegal union security contract.

The board's ruling is playing a significant role in the current clean-up of construction industry hiring practices.

Gist of the court's decision ruling is that the Brown-Olds remedy is a reasonable exercise of the NLRB's authority.

"The board has wide discretion," the court said, "in ordering affirmative action against persons found engaging in unfair labor practices. The particular means for expunging the effect of unfair labor practices are for the board and not the courts to determine. The board does have the power to order reimbursement by the employer and when it so orders, its decision should stand unless there is a showing that the order is a patent attempt to achieve ends not designed to fairly effectuate the policies of the act."

Under the Brown-Olds rule, which the NLRB is using to enforce its Mountain Pacific decision on hiring violations, the contractor and the union may be jointly and severally compelled to refund all union initiation fees, dues and assessments collected under closed shop conditions. Common examples of the latter are exclusive or preferential hiring of union members or illegal union shop clauses.

The case before the court in Denver arose in 1955 and involved the Broderick Wood Products Co. of Denver and Local 13 of the teamsters union. The two were parties to a labor contract that gave preference in hiring to union members and that contained an illegal union shop clause—a 10-day instead of a 30-day waiting period before new employees were required to join the union.

No calculation has yet been made of the amount of money involved in the refund penalty. The court's opinion specifically mentions refunding initiation fees of $30 each to 20 employees, making a total of $750.

But another 50 or so employees were hired under the same terms. Therefore the ultimate penalty will be much larger. The period of the refund starts at a point six months before the unfair labor practice charge was filed. If the union can't pay, the employer must.

The company argued unsuccessfully that application of the remedy would be discriminatory in this case. It said the NLRB general counsel, Jerome Fenton, had refrained until November 1 from applying the remedy in the construction industry.

"It is true," the court replied, "that in February 1958, prompted by the concern with the prevalence of illegal hiring arrangements in the building and construction industry, the general counsel of the board publicized a letter to that industry which pointed out that voluntary correction of such illegal agreements would be in the public interest and the preferable solution to the problem." The attorney then suggested voluntary correction of violations, the court said. "However, as we read the letter of the general counsel, he made it clear . . . that the remedy would only be withdrawn for voluntary correction in two situations: future cases brought before the board and those then pending disposition."

Painters Get No Support On Plaster Restriction

Labor is apt to be as touchy about union restrictions of various kinds as contractors are. Here's a good example:

The Florida State Federated Labor Council turned down at its annual convention a proposed ban on the use of colored plaster in state and county construction work. But it passed a resolution calling for a law that forbids use of prison labor on all public projects.

Both proposals represent union efforts to preserve the job opportunities of their members. They stem from the same interest in self-preservation that inspires jurisdictional disputes or that leads to restrictions on prefabricated materials or on labor-saving devices.

The rejected plaster proposal came from a local of the painters union, which saw in colored plaster a loss of jobs for painters. But the bricklayers union said the ban would be as absurd as one requiring all buildings to be constructed of wood.

Adoption of the convict labor resolution, which suggests imprisonment for violations, represents a protest against the state's use of prison labor for road maintenance and its proposed use of convicts to build a new penitentiary.

A Master Contract

Canadian labor council uses standard agreement

A Canadian building trades council is winning employer approval of a new form of standard labor agreement designed mainly for use by out-of-town contractors.

The agreement is similar in many respects to those negotiated by the councils in the United States. It's a blanket contract binding the contractor and the unions to abide by local, prevailing wage scales and working conditions. It is being promoted in Hamilton, Ontario.

The council calls the contract a step forward in achieving trouble-free labor relations.

The agreement contains four principal provisions in addition to the one on wage and working conditions:

- The contractor recognizes the council and its affiliated unions as bargaining agent for its employees.
- The contractor is committed to employ only members of council affiliates.
- The contractor agrees to let contracts or subcontracts only to those whose employees are union members.
- The agreement runs for one year, or until jobs begun while it is in force have been completed.

Richard Gray, president of AFL-CIO Building and Construction Trades Department, recently referred to agreements of this type as one form of union organizing procedure. They were cited in a union dispute now before the AFL-CIO as evidence of the traditional right of councils to organize (ENR Nov. 20, p. 111).

Construction Union Calls For a Four-Day Workweek

A nationwide four-day week for construction workers has been suggested by the United Brotherhood of Carpenters.

The union adopted a resolution at its recent general convention in St. Louis calling upon the AFL-CIO Building and Construction Trades Department to work with the building trades unions toward that goal.

The declining use of manpower was cited as the reason for the resolution.

Union interest in a four-day workweek is not new. Automation, the introduction of labor-saving devices and unemployment have kept the issue alive. Coupled with these is mounting union alarm over the fact that industrial production is recovering from the recession faster than employment.

No Jobs, No Men

Contractor sues union in featherbedding case

A Rhode Island construction company is seeking $50,000 in damages and a federal court injunction against a local of the plumbers union. It says the union pulled members off a job because the company refused to hire extra men. The company said it had no work for extra men.

The action was brought by E. Turgeon Construction Co., Inc., after four union steamfitters and a foreman quit to protest the company's refusal to hire three union men on three eight-hour shifts daily to turn a steam valve off and on.

The company said in its complaint that the valve had not been touched in three weeks after it was turned on. It said it "refused to employ any workman for whom there is no work to be performed."

Union steamfitters get $4 an hour, including fringe benefits. Employment of three men to watch the valve around the clock would cost $96 a day of $672 a week, the company said. The problem is similar to one New Jersey contractors have faced in a long fight with operating engineers and electrical workers over the hiring of extra men to start and stop small power tools (ENR June 12, p. 142; July 17, p. 111).

The Rhode Island company has filed an unfair labor practice charge with the National Labor Relations Board as a preliminary step to a court injunction to end the work stoppage.

Federal-Aid Roads Open To Out-of-State Labor

You don't have to be an Oklahoman to work on Oklahoma's federal-aid roads.

That's the Bureau of Public Roads answer to the state's request for a ruling on a 1957 Oklahoma labor law.

The law requires 90% of workers on highway jobs within Oklahoma to be residents, except when this violates federal regulations.

Interpretation of this law sparked a dispute between State Labor Commissioner Jim Hughes and the Austin Bridge Co., Dallas, over out-of-state workers on an Oklahoma City bridge job. The work is part of an interstate project, 90% financed by federal funds.

To resolve the conflict, and to avoid endangering the $1.6 million in federal money for the project, the state asked BPR to spell out its policy on this question.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.10 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record
P.O. Box 12, New York 36, N. Y.

Bids: December 3, 1958

Davenport Bridge Commission

CONTRACT NO. 3
APPROACH ROADWAYS FOR THE EXPANSION AND IMPROVEMENT OF THE IOWA-ILLINOIS MEMORIAL BRIDGE
Over the Mississippi River Between Bettendorf, Iowa and Moline, Illinois
INVITATION TO TENDER

The Davenport Bridge Commission of the City of Davenport, Iowa, invites proposals for the construction of the Bettendorf, Iowa, and Moline, Illinois, Approach Roadways for the expansion and improvement of the Iowa-Illinois Memorial Bridge over the Mississippi River between Bettendorf, Iowa, and Moline, Illinois. Sealed proposals for the Work described below will be received by the Davenport Bridge Commission in the office of Mayor, City Hall, Davenport, Iowa, until 10:00 A. M. Central Standard Time, December 3, 1958, at which time the proposals will be publicly opened and read.

This Contract No. 3 consists of the furnishing of all materials for and the construction of the approach roadways and connections to City streets of Bettendorf, Iowa and Moline, Illinois, for the Iowa-Illinois Memorial Bridge, including roadway grading, drainage and paving; alterations to existing sanitary and storm sewer facilities; demolition of buildings, reconstruction of wingwalls of the existing Bettendorf abutments; construction of a bituminous paved parking lot and maintenance apron; the construction of light standard bases and the installation of rigid conduit for a roadway lighting system; the construction of concrete fixture bases and the installation of conduit for a traffic signal system, including handholes and manholes; and other incidental and miscellaneous items of work required to complete the construction of improvements to the approaches at the entrances to the bridge, which together with the construction of a second two-lane highway bridge (under other contracts) adjacent to and approximately 72 feet downstream from the existing Iowa-Illinois Memorial Bridge, will provide upon the completion of the entire project, together with the existing bridge, a four-lane divided highway facility approximately 5505 feet in length.

All work is to be accomplished without interruption to or interference with the two-lane traffic on the existing bridge and with a minimum of interruption to and interference with highway and city street traffic. Pedestrian and vehicular traffic shall be maintained and protected at all times.

A fuller description of the work to be done and of the requirements, provisions and details thereof is given in the Contract Drawings and Specifications, copies of which are on display in the office of the Mayor of the City of Davenport, Iowa; in the office of the Resident Engineer, adjacent to the existing Bettendorf Anchorage, Bettendorf, Iowa; and in the offices of the Engineers, Modjeski and Masters, Sixth Street at Forster, Harrisburg, Pennsylvania, or may be obtained from the latter office upon deposit of Twenty Dollars ($20.00) per set. Deposit checks shall be made payable to Modjeski and Masters.

Copies of cross-section sheets will be available for review by prospective Bidders at any of the above offices. Copies of the cross-section sheets will be furnished to the successful bidder.

Deposits of all bona fide Bidders will be refunded upon return of documents in good condition within ten (10) days after receipt of bids. All other deposits will be retained.

No proposal will be received unless accompanied by a certified check satisfactory to the Commission drawn upon a National Bank organized under the laws of the United States or upon a State or Savings Bank or Trust Company organized under the laws of the State of Iowa, and in any case having an office or place of business in the State of Iowa, and payable to the order of the Davenport Bridge Commission for the sum of Twenty-five Thousand Dollars ($25,000) as security for the proper execution of the Contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the office of the Mayor. Receipt for the deposit will be given by the Commission.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids; to award the Contract only to those experienced in this class of work and to the Bidder whose proposal is deemed by the Commission to be most advantageous to the public interest. The provisions of the above Invitation to Tender are made for the benefit of the Commission and no right shall be deemed to accrue to any person making a proposal by reason of the submission of any proposal hereunder or by the waiver or non-enforcement of any provision or requirement of the Invitation.

Dated: Nov.-6-58
(Mailing Address: 806 Davenport Bank Bldg., Davenport, Iowa)
DAVENPORT BRIDGE COMMISSION
Davenport, Iowa
By H. G. Lohmiller
Secretary

Bids: December 9, 1958

Power Authority of the State of New York

For the Furnishing and Delivery of Gates and Stoplogs for Lewiston Power Plant
Specifications No. PA-N-23017
Niagara Contract No. NP27

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery thereof f. o. b. destination, Niagara Falls, Niagara County, New York, of the gates and stoplogs for the Lewiston Power Plant until 10:30 A. M., Eastern Standard Time on the 9th day of December, 1958, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating, furnishing and delivery thereof of approximately 2,400 tons of structural steel draft tube gates, stoplogs and intake gates for the Lewiston Power Plant.

Delivery of the above items will be required beginning February 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at The Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans Specifications and Proposal Forms for the work will be on file in the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee (certified check or bid bond) will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

OFFICIAL PROPOSALS

Bids: December 11, 1958

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Canal Law and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time on the 11th day of December 1958, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following Projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 333 Broadway, Albany 1, New York						
Albany & Schenectady (Int. Tour. Rte. 890)	FISH 58-20 FAC 58-26P ST 58-2	City of Schenectady: Crosstown Connection, Interstate Route Connection 550 (Schenectady Crosstown to Thruway) N.Y.S. Thruway, Mohawk Section: Interchange No. 25 Connection Proj. U-I-IG-323(13)	2.22 (1.81 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide=2.06 Miles; Acc. Rd.=1.81 Mi.; Conc. Pavt. Temp. Asph. Conc.=0.07 Mi.; Misc. Work=0.09 Mi.; 3 Hy. Sepa. Comp. I-Beams 231', 191' and 205.3'	$160,000 Plans $5	$3,861,000
DISTRICT No. 2, L. Ketchum, District Engineer, 100 No. Genesee Street, Utica 1, New York						
Oneida (Rte. 49)	FARC 58-172	Mohawk River-Rome, S.H. 560 Mohawk River Road-Floyd, S.H. 295 Mohawk River Road-Marcy, S.H. 296 Proj. U-518(6) & F-518(6)	6.37 (3.03 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide=6.23 Miles; Misc. Work=0.14 Mi.; (Acc. Rds.=1.79 Mi. Conc. & 1.24 Mi. Asph. Pavt.) 2 Hy. Sepa. Prestres. Conc. Beam 228.3' & 230.8'; 1 Br. Reinf. Conc. Box 24'; 1 Br. Prestress. Conc. Beam 211.5'; 1 Br. Reinf. Conc. Slab 24.6'	$265,000 Plans $5	4,776,000
Oneida (Rte. 13)	FARC 58-174	South Bay-Vienna, S.H. 8219 Proj. F-384(5)	0.32 (0.25 Acc.)	9" Cem. Conc. Pavt. 24' Wide=0.32 Mi.; (Acc. Rds.=0.25 Mi. Asphalt Concrete); Plate Girder Br. 440'	$40,000 Plans $5	730,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Seneca	FAC 58-27	City of Geneva: Lake Front Arterial, Pt. 2	2.23	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide=2.74 Miles;	$130,000 Plans $5	2,350,000
Ontario (Rtes. 5 & 20)	FASH 58-22	Geneva Lake Front East Highway Connection Proj. U-UG-452(7)	(1.17 Acc.)	Asph. Conc.=0.24 Mi.; Gravel Top Crse.=0.08 Miles; Misc. Work=0.34 Mi.; Ped. Overpass Thru Girder 417.7'; RR Sep. Deck Girder 211.8'		
Livingston (Rte. 5)	RC 58-171	Caledonia-Avon, S.H. 9273 (Br. No. 5)	....	Repairing Replacing Deck, Cleaning & Painting a Truss Br. 3 Spans, 293.7'	$8,000 Plans $5	145,000
Monroe	FATS 58-1	Rochester City: Inner Loop (South Ave. to George St.) Proj. U-231(12)	0.53	Furnish & Install Traffic Signs	$1,500 Plans $5	26,000
Wyoming	FASSH 58-27	Arcade-Java Center Proj. S-200(3)	8.24	Bit. Mac.=8.19 Mi.; Misc. Work=0.05 Mi.; Prestress. Conc. Beam Br. 46.7'	$60,000 Plans $5	1,094,000
DISTRICT No. 5, E. G. H. Youngmans, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie (Rte. 324)	FATC 58-3	Sheridan Drive, S.H. 9216 Proj. U-1123(2)	6.86	Traffic Signal System	$12,000 Plans $5	216,000
Erie & Niagara	M 58-17	Erie Canal Bridge E-247 at Delaware Ave. in Cities of Tonawanda & North Tonawanda	0.10	Br. Repairs; Remove & Replace Conc. Deck and Wear. Crse.	$3,500 Plans $10	64,000
DISTRICT No. 6, James H. Thomas, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Chemung	FASS 58-27	Big Flats-South Corning, C.R. 10 Proj. S-525(1)	0.42	Bit. Double Surf. Treat. Stone Comp. Weld Plate Girder Br. 587.5'	$28,000 Plans $5	514,000
Chemung & Steuben (Rte. 17)	FARC 58-170	Elmira-Horseheads Connection Pts. 1 & 2, FASH 54-15; Horseheads Village, FASH 53-5 & S.H. 5162; Horseheads-Corning, S.H. 358; East Corning-Horseheads, Pt. 2 & Pt. 1, FASH 53-6 & FASH 55-5 Proj. U-221(10), U-661(6) and F-661(6)	14.04	Chain Link & R.O.W. Fencing	$7,000 Plans $5	129,000
Orange & Ulster (Rte. 300)	FARC 58-173	Wallkill-Newburgh, Pt. 1, S.H. 1417 Newburgh-Shawangunk, S.H. 161 Proj. F-416(4)	2.07	Asphalt Concrete	$21,000 Plans $5	384,000
Ulster (Int. Tour. Rte. 587)	FISH 58-18	Interstate Route Connection 530 (City of Kingston) (Sawkill Road Highway Grade Separation) Proj. I-1150(3)	0.10	Ashph. Conc. Hy. Sep. Prestress. Conc. Beams 179'	$12,000 Plans $5	209,000
Westchester (Rte. 118)	FARC 58-97	Pines Bridge-Yorktown Heights S.H. 148 Yorktown Heights-Putnam County Line, S.H. 149 Proj. S-150(2)	0.97	9" Cem. Conc. Pavt. 24' Wide=0.92 Mi.; Misc. Work=0.05 Mi.	$18,000 Plans $5	334,000
DISTRICT No. 9, Joseph C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Chenango (Rte. 12)	FAC 58-18	City of Norwich: Arterial Highway (South and North Broad Street). Proj. U-878(3)	1.02	Asph. Conc. Ty. 2B=1.01 Mi. Misc. Work=0.01 Mi.	$40,000 Plans $5	733,000
DISTRICT No. 10, M. E. Gould, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Tour. Rte. 95)	FINETC 58-5	Interstate Route Connection 511 New York State Thruway—New England Section—Sub. NE-6 (Westchester Ave. to New York City Line) (Cont. 3B) Proj. I-1068(21)	3.54	Landscaping, Fencing and Misc. Work	$62,000 Plans $5	1,122,000
Queens (Int. Tour. Rte. 495)	FICE 58-2	Interstate Route Connection 513 Clearview Expressway (Horace Harding Exp. to 32d Avenue) (Cont. 1E) Proj. I-1112(8)	1.95	Demolition of Buildings	$6,000 Plans $10 Large Size Only	113,000
Queens (Int. Tour. Rtes. 78 & 495)	FIHHE 58-2 FICE 58-3	Interstate Route Connection 514 Horace Harding Exp. Sect. II (190th St. to Oceania St.) Interstate Route Connection 513 Clearview Exp. (73d Ave. to 56th Ave.) Proj. I-862(16) and I-1112(9)	2.64 (5.35 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' Var. Wide=1.58 Miles; Grad. & Drain=0.74 Miles; Misc. Work=0.32 Mi. (Acc. Rds.=2.97 Mi.; Cem. Conc. & 2.38 Mi.; Asph. Con. Pavt.) Ped. Overpass W.F. Beams 309.3'. 9 Hy. Sepa. Comp. W.F. Beams 177.3', 107.2', 142', 127.9'; 145.8', 107.2', 82.3', 125.2' and 203.6'	$670,000 Plans $10	12,145,000
Suffolk	FASS 58-28	William Floyd Parkway Extension Pt. 1, C.R. 46-A Proj. S-SG-531(1)	4.70	Asph. Conc.=4.62 Mi.; Misc. Work=0.08 Mi.; 1 RR Sep. Reinf. Conc. Slab 165'	$103,000 Plans $5	1,872,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal. Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: December 9, 1958

Contract GWB-190.046

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
LOWER LEVEL EXPANSION
SUSPENDED STRUCTURES
UPPER ROADWAY—DRAINAGE MODIFICATIONS

Sealed proposals for performing drainage modifications to the existing upper roadway of the George Washington Bridge will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y. until 2:30 P.M. on Tuesday, December 9, 1958 at which time said proposals will be opened and read in Room 1108.

Contract Documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, November 27, 1958

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5122) will be received at Ephrata, Washington, until 10 a.m. Pacific Standard Time, January 6, 1959, for furnishing labor and materials for the construction of Radar Pumping Plant, Lateral WB3, and Discharge Lines WB3A and WB3B, Columbia Basin Project, Washington. Location south of Othello, Washington. Principal items are 55,300 cu. yds. excavation; 2,800 cu. yds. concrete; 712 lin. ft. furnishing and laying 66-inch concrete pipe; 4,097 lin. ft. furnishing and laying 72-inch concrete pipe or alternative 72-inch steel pipe; lump sum, installing 5 main pump units; furnishing and installing other items of equipment and materials; and other work. Completion time 600 days. For particulars, address Bureau of Reclamation, P. O. Box 368, Ephrata, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

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OFFICIAL PROPOSALS

Bids: December 23, 1958

Contract PN-530.004

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK

ADDITIONAL PAVING AND DRAINAGE NORTH OF BUILDINGS 290, 291 AND 292

Sealed proposals for the construction of pavement and drainage North of Buildings 290, 291 and 292 at Port Newark, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, December 23, 1958, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, November 27, 1958

Bids: December 23, 1958

Contract NYA-650.066

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
INTERNATIONAL ARRIVAL AND AIRLINE WING BUILDINGS
MISCELLANEOUS ALTERATIONS
STAGE III

Sealed proposals for the performance of miscellaneous alterations in the International Arrival and Airline Wing Buildings and the Control Tower at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, December 23, 1958, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

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THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, November 27, 1958

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: January 6, 1959

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
For the Sale of Tunnel Gates and Appurtenant Metalwork Salvaged from Long Sault Dam near Massena
St. Lawrence County, New York
Specifications No. PA-5-15080
St. Lawrence Contract No. P 43

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals from prospective purchasers of tunnel gates and appurtenant metalwork salvaged from Long Sault Dam, near Massena, St. Lawrence County, New York until 10:30 A.M., Eastern Standard Time on the 6th day of January, 1959, at the Authority's office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The quantities of the principal items of equipment and material to be sold are as follows:

27 Fixed wheel gates, designed for closure of 16 x 19 foot tunnels under 80 foot head.
Approx. 150 tons 1¼" x 8" gate suspension bars of assorted lengths, with pins.
1 Gate lifting beam assembly.
28 36" WF 160 beams, each approximately 58 feet long.
Approx. 25 tons Miscellaneous fabricated structural steel.
Approx. 5,300 sq. ft. ⅜" thick checkered steel plate.
Approx. 2,000 lin. ft. 1¼" steel pipe hand railing.

All equipment and material which is purchased shall be completely removed from the St. Lawrence Power Project on or before June 1, 1959.

Bids will be considered on any number of gates from one to twenty seven and on any bid item or combination of bid items for appurtenant metalwork.

Plans, Specifications and Proposal Forms for the equipment and material to be sold may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at no cost, upon written application, Plans, Specifications and Proposal Forms for the equipment and material to be sold will be on file in the Authority's office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the total amount of the bid.

The right is reserved to make award on any bid or combination of bids and to reject any or all bids.

W. S. Chapin
General Manager

Bids: December 9, December 17, 1958

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:

Until 11 A.M. on Wednesday, December 17*, 1958

For Throgs Neck Bridge Contract No. TN-11, Queens Interchange. The bid must be accompanied by a deposit in the amount of $80,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $45.00, which will not be refunded.

Until 11 A.M. on Tuesday, December 9, 1958

For Throgs Neck Bridge Contract No. TN-9, Electrical Work Suspended Structure and Approaches. The bid must be accompanied by a deposit in the amount of $60,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $25.00, which will not be refunded.

** Opening Date for bids on Contract TN-11 has been changed from Dec. 10th to Dec., 17th.*

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

DECEMBER 11th ISSUE CLOSES DECEMBER 1st

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division or ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ENGINEERS

PERMANENT OPENINGS FOR QUALIFIED MEN EXPERIENCED IN THE DESIGN OR SPECIFICATIONS FOR

AIRPORTS
BRIDGES
BUILDINGS
HIGHWAYS
RAILROADS

PREFER GRADUATE REGISTERED ENGINEERS WHO SEEK LONG RANGE EMPLOYMENT WITH AMPLE OPPORTUNITY FOR PROFESSIONAL DEVELOPMENT AND ADVANCEMENT IN A STEADILY EXPANDING AND GROWING ORGANIZATION.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

Work will be in the general offices in St. Louis. Interviews can be arranged in Washington, D. C., and San Francisco also.

Please write fully, including salary data, to

SVERDRUP & PARCEL, Inc.
ENGINEERS — ARCHITECTS
915 Olive St. Louis 1, Mo.

CHIEF ESTIMATOR

Construction firm, located in Virginia, performing industrial, commercial and engineering type construction is interested in employing estimator whose experience and background will qualify him for immediate or eventual position as estimating manager. Permanent employment if work proves satisfactory. Civil Engineer graduate preferred.

P-9255, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ENGINEERING DESIGN PERSONNEL

Highway & Bridge Designers, Highway & Bridge Draftsmen
Openings in Pennsylvania, Ohio, Maryland & West Virginia

Career opportunities for individuals interested in professional recognition ample opportunity for advancement based on merit, plus employee retirement plan, group life insurance, hospitalization, paid vacation and holidays.

EXPERIENCE REQUIRED

Mail Resume To F. W. AHERN, Personnel Director

MICHAEL BAKER, JR., INC. *Consulting Engineers*
Baker Building Phone: SPruce 4-3010 Rochester, Penna.

CHIEF ESTIMATOR—The man we are looking for has had a substantial background of successful experience bidding competitive building construction work for general contractors engaged in multi-million dollar projects. He is ready to take over and assume full responsibility of a chief estimator.

We have an exceptional opportunity to offer this man. We presently operate on a nationwide basis, but plan to expand our operations especially throughout the mid and far western states. We can offer a key position in this expansion program and an opportunity to grow with a growing company.

Write full details, covering experience, education, references, personal data and salary requirements.

Director of Personnel
BLOUNT BROTHERS CONSTRUCTION COMPANY
P. O. Box 949, Montgomery, Alabama

Steel Design Engineer

Graduate Engineer interested in full time, permanent employment with nationally prominent structural steel fabricated located in St. Louis. Paid vacations, pension plan and group insurance provided. Experience required, preferable age 30-40. Excellent opportunity for right man interested in structural design.

Reply in writing giving education, age, present salary, and experience resume.

P-9340, Engineering News-Record
520 N. Michigan Ave., Chicago, Ill.

WANTED

ESTIMATING ENGINEER

Midwestern consulting engineering firm needs engineer with estimating experience for contractors and with consulting experience to organize and head estimating.

P-9092, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SURVEYING INSTRUMENTS (European)

U. S. Factory representatives offer permanent position to capable salesman; nationwide traveling and office supervision; salary and/or commission, plus expenses. Specific experience required. Send detailed resume (including education, salary desired, references) to:

SW-9346, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Highway Engineers—Highway Engineers wit a minimum of 3 years experience. Excelle opportunity with established consulting en gineering firm in Middle West. P-790 Engineering News-Record.

Assist. Prof.—To teach undergrad. course in structures and mechanics. Salary open Civil Eng., Univ. of No. Dak., Grand Fork

Estimator-General Superintendent for mid western utility contractor. At least ten years experience with some engineering back ground. Send complete resume to P-920 Engineering News-Record.

Electronic Computer Application Engine Wanted. Midwestern consulting Engineerin firm needs graduate engineer experienced i electronic computer application to enginee ing problems. Reply in detail to P-9211, En gineering News-Record.

Estimator wanted by General Building Co tractor. Prefer graduate Civil or Archite tural Engineer with at least 5 years estimating experience on General Buildin Construction. Capable of completing est mates from preliminary plans. Excellent op portunity. Location—Central Pa. P-922 Engineering News-Record.

Estimator wanted by Paving and Concret Contractor. Prefer Graduate Engineer with years experience. Permanent Position. Loca tion N.Y.C. P-9314, Engineering News Record.

Chief Electrical Engineer and Assistant Chie Electrical Engineer. Excellent opportuniti in the main office of well known Consultin Engineering Firm in New York City. Posi tions require 10 to 15 years experience i responsible design positions with a minimu of 5 years experience in responsible charg of design of major hydroelectric power sta tions and transmission systems. P-9357, En gineering News-Record.

Construction—spare parts manager, heav equipment maintenance superintendent, ware house superintendent. Good long term posi tions available for top men. Overseas—tem perate climate. Please send detailed resum including foreign languages known, salar desired, etc. P-9363, Engineering News Record.

Mechanical Engineers—Experienced in desig calculations, equipment selection and ar rangement, process and service piping lay outs for chemical plants or paper mills Position with Consulting Engineering firm i Georgia. State education and experience P-9360, Engineering News-Record.

(Continued on following page)

• POSITIONS VACANT
(Continued from preceding page)

Mechanical Engineer for permanent position in medium sized Engineering Department. Exceptional advancement opportunities with a growth company. Prefer man with 5 to 10 years experience and with M.E. degree or equivalent. Familiar with design and construction of electrical and mechanical machines and equipment. P-9355, Engineering News-Record.

Chief Estimator with the following qualifications. Graduate Engineer. Mature. Completely Experienced in all phases of reinforcing concrete and heavy building estimating. Must have at least 10 years experience in diversified estimating. Position with one of the largest organizations in the east. Proper opportunity for the right individual with initiative and capacity. Send complete resume of education and experience. P-9365, Engineering News-Record.

Wanted—Estimator to assemble complete general construction bids. Must be heavy on concrete and masonry. Westchester contractor. P-9369, Engineering News-Record.

Hydraulic Engineers—Experienced in hydraulic design of channels and bridges, and/or design and construction of dams, for Commonwealth of Pennsylvania, Department of Forests and Waters. Duties include review of plans and specifications, report writing, field investigations and inspections, with some travel and public relations. Salary depending on experience. Location—Harrisburg, Pennsylvania. Write State Civil Service Commission, Health and Welfare Building, Harrisburg, Pennsylvania.

Mechanical Engineer—Estimator. Mechanical Contractor offers opportunity in heating, air conditioning, refrigeration, sheet metal and industrial piping. Must be ambitious, aggressive and military obligations completed. Some background experience desirable. Submit personal resume and recent photograph. Kendall Plumbing, Inc., 1647 Laura, Wichita, Kansas.

• POSITIONS WANTED

Project Manager—Construction Engineer B.S.C.E., Reg. Engr., age 50, perfect health, 28 yrs. experience in design and construction of sanitary engineering projects, industrial, commercial and housing developments, municipal engineering, tunnels and highways. Fully capable to plan, organize and administer engineering and construction activities, either in field or office. Available approx. Jan. 15, 1959. Salary open. Prefer mid-western states bordering the great lakes or central eastern states. Job responsibility and challenge more important than location. Full resume on request. PW-9234, Engineering News-Record.

Management Level experience, both U. S. and foreign, in construction and related activities—promotion, organization, financing, negotiation, project supervision and top level representation in Washington, D. C. PW-9257, Engineering News-Record.

Structural Engineer, Estimator, Spec. Writer. Thorough supervisory experience leading engineering & const. firms. Power plants, large industrials, waterfront structures, dams, airfields, bridges, etc. Permanent position wanted. M. Atl. or N.E. PW-9285, Engineering News-Record.

Civil Engineer, Eligible for professional licensing. Desires City Engineer job, salary and location open. BSCE 1953. PW-9304, Engineering News-Record.

To EMPLOYERS Who Advertise for MEN:

Frequently, when there are many applicants for a position, only the most promising letters are acknowledged. The other applicants never know whether their letters reached a prospective employer or not. These men often become discouraged, will not respond to future advertisements and even question their bona fide character.

Every Advertisement Printed Is Duly Authorized.

You can help keep our readers interested and get better returns to your advertising in this section if you acknowledge each reply—in plain envelopes, if you wish.

Classified Advertising Division

McGRAW-HILL PUBLISHING CO., INC.

"Put Yourself in his place."

• POSITIONS WANTED

Job office Manager—Administrator 12 years doing cost, payroll, personnel, purchasing, paymaster, general office. PW-9303, Engineering News-Record.

Const. Supt. twenty six years responsible charge of grading and drainage, asphalt paving, flood control, and bridges. PW-9312, Engineering News-Record.

Structural Steel Executive, under 40, cost conscious, production minded, well versed in pricing and sales. PW-9319, Engineering News-Record.

Field Eng'r.—Estimator, 26, M.S.C.E., desires position with gen'l contractor in N.Y. area, excellent references. Available December. PW-9321, Engineering News-Record.

Const. Supt. 25 yrs experience in commercial buildings. Available now. PW-9328, Engineering News-Record.

Civil Engineer, Engineer-in-Training N. Y. State, eligible for Part III & license February 1959. BSCE, experience in structural design and construction also public works engineering. Avail Jan. 1959. Former US Navy, CEC Officer. Will relocate anywhere in U.S. PW-9294, Engineering News-Record.

Graduate Civil Engineer, age 33. Desires engineering or management position. Background of estimating and engineering on heavy construction, tunnel, and sewer work. Resume to all replies. PW-9361, Engineering News-Record.

Resident Engineer, General or Electrical Superintendent. 25 years experience in all types of electrical and general construction. Hve completed projects in Caribbean, South America and Far East; prefer foreign work. PW-9352, Engineering News-Record.

• POSITIONS WANTED

Project Engineer-in charge of design and construction of major water supply and sewage works. Experience includes negotiation with prospective clients and overall direction of projects from initial stages through completion. Presently Associate with prominent engineering consultants active in broad field of civil engineering. Desires similar connection with reputable firm specializing in water supply and sewage works. PW-9351, Engineering News-Record.

Construction Engineer, 33, BSCE, ten years experience with consultants and contractors as superintendent of construction. Toll and State Highways, water and sewage work. Available January 1. P.O. Box 102, Dundee, Illinois.

Civil Engineer, B.S.C.E. 1958 graduate, Canadian, 24. Seeks overseas employment in construction field. Three summers construction experience. PW-9367, Engineering News-Record.

Estimator-Project Manager, 20 years experience in estimating, engineering and construction of highways, turnpikes, dams, tunnels and other heavy construction familiar with sub-contracts and other relations—age 50. Free to travel and can be available in 30 days. PW-9371, Engineering News-Record.

BSCE, PE, 31, 3 years structural design, 3 years industrial construction supervision, desires sales engineering position with future management opportunities. PW-9338, Engineering News-Record.

Construction Supt., age 45, 25 yrs experience in mass & reinforced concrete const., erecting bridges, dams, power houses, office & manufacturing bldg's., engineer & design experience, resume on request, locate anyplace in U.S. PW-9372, Engineering News-Record.

SEARCHLIGHT SECTION
CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vert. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

FOR RENT
3—1957-Caterpillar Model DW21-Tractors
1—1957-Caterpillar Model D-8
1—1957-Caterpillar Model D-9
Above operated less than 1000 hours.

J. A. & W. A. HESS INC.
309 Hazleton National Bank Building
Hazleton, Pennsylvania
GLadstone—4-3731

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.
WILSON *Engineering Corp.*
Lefiaga House Offices HARVARD SQ. CAMBRIDGE MASS

FOR SALE OR RENT
1—LeTourneau-Westinghouse TWIN C Pusher. Here is a unit that will really belt those Scrapers through the cut in "nuthin' flat".

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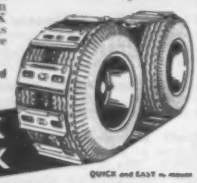

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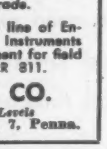

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Air Pollution

THE CONFERENCE ON AIR POLLUTION called last week in Washington was welcome evidence of increased federal concern with a problem that has grown to menacing proportions. In the final analysis, each city will have to handle its own air pollution abatement, but national leadership is badly needed in the establishment of standards and in educating the public to the needs. These needs are reflected in the high incidence of respiratory diseases, in high laundry bills and in the corrosion of metals, to mention a few of the consequences of pollution (p. 25).

Air pollution abatement is not a civil engineering problem especially, although it is without question an engineering problem. Nevertheless, its solution is of direct concern to civil engineers and architects, who witness their buildings becoming grimy and their other structures corroding in far too short a time. Polluted air could also conceivably pollute water supplies.

As a menace to health and a drain on the economy, air pollution is a national problem. It is heartening therefore that such a national body as the USPHS is taking a leading interest in it. Out of such interest should come a better informed public, and one which will lend the support, now so frequently lacking, in local attempts at air pollution control.

The Ideal Meeting

MORE DISCUSSION TIME at meetings has been set forth as an ideal recently (ENR Oct. 23, p. 100), and it's a pleasure to find that ideal being approached so soon. The occasion was the meeting of the Engineering Geology Division of the Geological Society of America, which was held in St. Louis in association with the Soil Mechanics Division of the American Society of Civil Engineers (ENR Nov. 20, p. 25).

More time was spent at this meeting in discussion of the papers than in their presentation. Each author was given but 20 minutes to summarize the main points of his paper (the day's program started at 8:30 a.m., it may be noted). Also, preprinted copies of the papers were distributed to the audience so that points of special interest could be studied before discussion got under way. Discussion, therefore, was not taken up with questions about what was in the paper, but was focused on additional facts, ideas and viewpoints.

The result, according to those who were there, was an engineering meeting on a new and technical subject—rock mechanics—that proved to be as rewarding as it was efficient.

Listening to reading of technical papers has been called one of the engineering profession's greatest wastes of man-hours. All too seldom is there sufficient opportunity for critical discussion of the ideas presented in these papers. Engineering societies need more working conferences at which all in attendance are invited—and given time—to participate. The engineering geologists appear to have achieved this goal. Their example is worthy of wide emulation.

What Kind of Schools?

A KING-SIZE RUCKUS has developed in New York over the cost of the city's schools (p. 27). With variations, it might be duplicated in any city in the country, because the question raised is a basic one: What kind of schools do the taxpayers want?

In New York, the city's chief fiscal officer has charged the Board of Education with being wasteful and extravagant in its planning and design practices. Then he puts a price tag on the practices, and advances the claim that schools that have been built at a cost of about $500 million could have been built for $400 million. The implication is that the cheaper schools would be just as good as the more expensive ones—a highly debatable point because both differences in design objectives and in concepts of school needs must be taken into account.

Two years ago a comprehensive report on school costs in ENR clearly brought out how widely such costs can vary depending on the facilities provided and the type of construction used. Cut out an auditorium and the cost goes down. Reduce the space per pupil and a saving is possible. Use lower ceiling heights, narrower corridors, smaller public spaces, and costs can be whittled.

There are many ways to build cheaper schools, but none may be desirable for various reasons. It would, therefore, be well for all school boards and their engineers and architects to have ready answers to charges of high costs. When the design is competently done, such answers come naturally from the planning studies.

An example in the New York case is the charge that the use of a blue tile brick instead of a common face brick for a school wall was extravagant. The architect's answer was that it was justified on two counts—it would wash clean when it rained, and it would provide some color in an otherwise drab neighborhood. These are both good design reasons and they have a direct bearing on whether the use of blue tile was extravagant.

Answers should also be ready for criticisms of procedures. Again in New York it was charged that architects were being paid too much for reuse of their plans. The implication was that no additional service was provided for the second fee. This is highly doubtful. Answers to set the record straight should be quickly forthcoming.

The New York case is highly charged with politics, but so are most other similar situations.

The lesson to be noted, however, is that the kind and cost of schools depends upon what the public wants and is willing to pay for.

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